

**Development of Regional Impact
#1977**

**Douglas Place
City of Douglasville, Georgia**

**Prepared For:
Douglas Place Enterprise I, LLC
33 Miller Street
Fairfield, CT 06824**

Prepared By:



200 North Cobb Parkway
Building 400, Suite 413
Marietta, GA 30062
Croy Project No.: 0785.00

August 21, 2009

TABLE OF CONTENTS

Executive Summary	1
1. Project Description.....	4
Introduction.....	4
2. Traffic Analyses Methodology & Assumptions	7
Growth Rate	7
Traffic Data Collection.....	7
Detailed Intersection Analysis	10
Unsignalized Intersections.....	10
Signalized Intersections	11
3. Study Network	11
Gross Trip Generation.....	11
Trip Distribution.....	11
Level of Service Standards.....	12
Study Network Determination	12
Existing Facilities	14
4. Trip Generation.....	16
5. Trip Distribution & Assignment	17
6. Traffic Analysis	21
Existing Operations	21
Year 2014 No-Build Operations	23
Year 2014 with Douglas Place Traffic.....	27
Year 2014 with Douglas Place Traffic with Improvements.....	31
7. Identification of Programmed Projects	34
8. Ingress/Egress Analysis	35
9. Internal Circulation Analysis	36
10. Queue Analysis	37
11. Compliance with Comprehensive Plan Analysis.....	37

12. ARC's Air Quality Benchmark.....	38
--------------------------------------	----

List of Figures

Figure 1 Location Map.....	5
Figure 2 Site Map.....	6
Figure 3 Existing AM and PM Peak Hour Volumes	8
Figure 4 Existing Saturday Peak Hour Volumes	9
Figure 5 Lane Configurations	15
Figure 6 Directional Distribution.....	18
Figure 7 AM and PM Generated Trips	19
Figure 8 Saturday Generated Trips	20
Figure 9 2014 AM and PM No Build Volumes.....	24
Figure 10 2014 Saturday No Build Volumes.....	25
Figure 11 2014 AM and PM Build Volumes.....	28
Figure 12 2014 Saturday Build Volumes.....	29
Figure 13 Improvements.....	33

List of Tables

Table 1 Historic Traffic Volumes and Percent Change	7
Table 2 Level of Service Criteria for Unsignalized Intersections.....	10
Table 3 Level of Service Criteria for Signalized Intersections.....	11
Table 4 Study Network Determination Calculations	13
Table 5 Existing Facilities	14
Table 6 Development Components.....	16
Table 7 Generated Trips with Reductions	17
Table 8 Existing Operations.....	22
Table 9 2014 No-Build Operations.....	26
Table 10 2014 with Douglas Place	30
Table 11 2014 with Douglas Place with Improvements	31
Table 12 Summary of Improvements	32
Table 13 Programmed and Planned Projects	34
Table 14 2014 Site Access Operations with Douglas Place	36

EXECUTIVE SUMMARY

Douglas Place is a proposed mixed-use development that will be constructed in the City of Douglasville, Georgia at the interchange of Interstate 20 and State Route 5 (Bill Arp Road). As part of the development process, a Development of Regional Impact (DRI) traffic impact analysis was performed in order to determine both the current traffic conditions and the build-out year (2014) traffic conditions. Weekday and weekend traffic data was collected to quantify the existing traffic conditions and this information was used with the existing geometry and traffic control at the adjacent intersections to calculate current Levels of Service (LOS). Additionally, the current traffic was grown at 2% per year to the build-out year to determine the background Levels of Service without the addition of Douglas Place traffic. Based on this analysis, it was determined that some intersections are projected to not meet the Level of Service standard even without the addition of the projected traffic from Douglas Place.

The new traffic to be generated by Douglas Place was estimated and distributed to the adjacent street network and intersections within the project's area of influence. To quantify the impact to operations, the Levels of Service were calculated again for the future year with the Douglas Place traffic assigned. The results of the analyses indicate that the traffic generated by Douglas Place will impact traffic operations at some of the intersections in the study network. However, currently programmed improvements such as the Bright Star Road Connector, Rose Avenue at SR 5 (Bill Arp Road), and the I-20 HOV project will provide sufficient capacity for the projected traffic from Douglas Place. These programmed improvement projects were then analyzed to ensure that the impacts to the Levels of Service to the improved network were consistent with the background year 2014 operations.

The following is a summary of the intersections that would not meet the LOS standard in the year 2014 and would require improvement even without the Douglas Place site generated traffic assigned to the network. Subsequent analyses show the improvements needed at these locations would also accommodate the projected Douglas Place traffic and continue to meet LOS standards.

- US 78/John West Road: installation of a traffic signal. The northbound approach during the evening peak hour operates at LOS F due to the heavy through volumes on US 78 not providing sufficient gaps in the traffic stream for John West Road traffic to safely enter the main line. The traffic signal would interrupt the flow on US 78 to allow the John West Road traffic to enter.
- Bright Star Road/Cowan Mill Road: installation of a traffic signal. The southbound approach would operate at LOS F during the evening peak hour due to delays at to the

multi-way stop. With traffic signal operation, not every vehicle would have to stop and delay would be reduced. As an option to the signal, a roundabout could be considered.

- I-20 WB On-ramp at Chapel Hill Road: installation of a traffic signal. During the evening peak hour the northbound left turn maneuver would operate at LOS F due to the heavy volumes of southbound through traffic. With signal operation, the southbound traffic would stop and the northbound left turn could safely enter the I-20 westbound on-ramp.
- Bill Arp Road (SR 5)/Douglas Boulevard: Widen the Bill Arp Road (SR 5) southbound approach to create a second left turn lane. Widen the Bill Arp Road (SR 5) northbound approach to create a separate right turn lane. (This intersection is within the proposed limits of the I-20/Bill Arp Road (SR 5) interchange reconstruction project).

Some intersections would not meet the LOS standard after the Douglas Place traffic is assigned to the network. These first of these two intersections are local roads.

- Bright Star Road/Bright Star Road Connector: construct a southbound left turn lane and northbound right turn lane on Bright Star Road; install a traffic signal.
- Bright Star Road/John West Road: Install a traffic signal. An option to the signal, a roundabout could be considered.

The remaining five intersections are on Bill Arp Road (SR 5) and are within the proposed construction limits for the interchange reconstruction project as part of GDOT's plans for adding HOV lanes on I-20.

- Bill Arp Road (SR 5)/Rose Avenue/Bright Star Road Connector: Restripe the southbound Bill Arp Road (SR 5) approach to create a separate right turn lane, a separate through lane, and a separate left turn lane. Restripe the Bright Star Road Connector eastbound approach to create a separate right turn lane, a separate through lane, and a separate left turn lane. Widen the northbound Bill Arp Road (SR 5) approach towards the east to create enough room for a second left turn lane. This approach would have two left turn lanes, a through lane, and a separate right turn lane.
- Bill Arp Road (SR 5)/Concourse Parkway: Restripe the westbound Concourse Parkway approach for two left turn lanes and a shared through and right turn lane. As part of the interchange and approaches reconstruction project, provide an additional through lane for northbound and southbound Bill Arp Road (SR 5).

- Bill Arp Road (SR 5)/I-20 WB Ramps: As part of the interchange and approaches reconstruction project, provide an additional through lane for southbound Bill Arp Road (SR 5). Also widen the westbound off-ramp for two left turn lanes and a separate right turn lane. Provide a second left turn lane for northbound traffic turning onto the westbound on-ramp.
- Bill Arp Road (SR 5)/I-20 EB Ramps: As part of the interchange and approaches reconstruction project, provide an additional through lane for northbound Bill Arp Road (SR 5). Also widen the eastbound off-ramp for two left turn lanes and a separate right turn lane. Provide a second left turn lane for southbound traffic turning onto the westbound on-ramp.

1. PROJECT DESCRIPTION

INTRODUCTION

Douglas Place is a planned mixed-use development located in the City of Douglasville, Douglas County, Georgia. Douglas Place is bordered by I-20 to the south, Bright Star Road to the west and Bill Arp Road (SR 5) to the east (see Figure 1). The approximate 132.34 acre site is also bifurcated by a new road, Bright Star Road Connector, which is currently completing construction.

The multi-use development is to be constructed over a number of years with the full build out projected for the year 2014. Douglas Place will be comprised of a variety of commercial and retail uses, one to include gasoline services; hotels, one with a conference center; restaurants; and residential units which will be the upper level floors above the in-line and convenience retail buildings, office building; and a movie theater (see Figure 2).

The trips to be generated by the different land use activities were calculated using the Institute of Transportation Engineer's (ITE) publication Trip Generation, 8th edition.

Existing traffic data was collected by performing turning movement counts at the study network intersections during the morning, evening, and Saturday peak periods of Spring 2009 while Douglas County schools were in session. In addition, 24-hour machine counts on roadways in proximity to Douglas Place were collected. Also, historic average daily traffic volumes as reported by the Georgia Department of Transportation (GDOT) were obtained. Projected traffic volumes from the regional travel demand model were obtained also from the Atlanta Regional Commission and Douglas County's Comprehensive Transportation Plan.

Full build-out of Douglas Place is projected to be the year 2014, year. The existing Levels of Service (LOS) for current conditions were calculated using collected traffic volume data and the existing lane assignments, configurations, and traffic control. Current traffic was then projected to each of the build-out year and the background LOS was calculated. Then the new traffic to be generated by the proposed land use components projected to be constructed at Douglas Place were estimated and distributed to the adjacent street network and intersections. To quantify the impact to operations, the LOS was calculated again for the future year with the Douglas Place traffic assigned. Improvements for programmed projects anticipated to be completed before 2014 were included in this analysis.

The results of these analyses were used to identify deficiencies in the traffic operations and potential improvements to mitigate negative impacts.

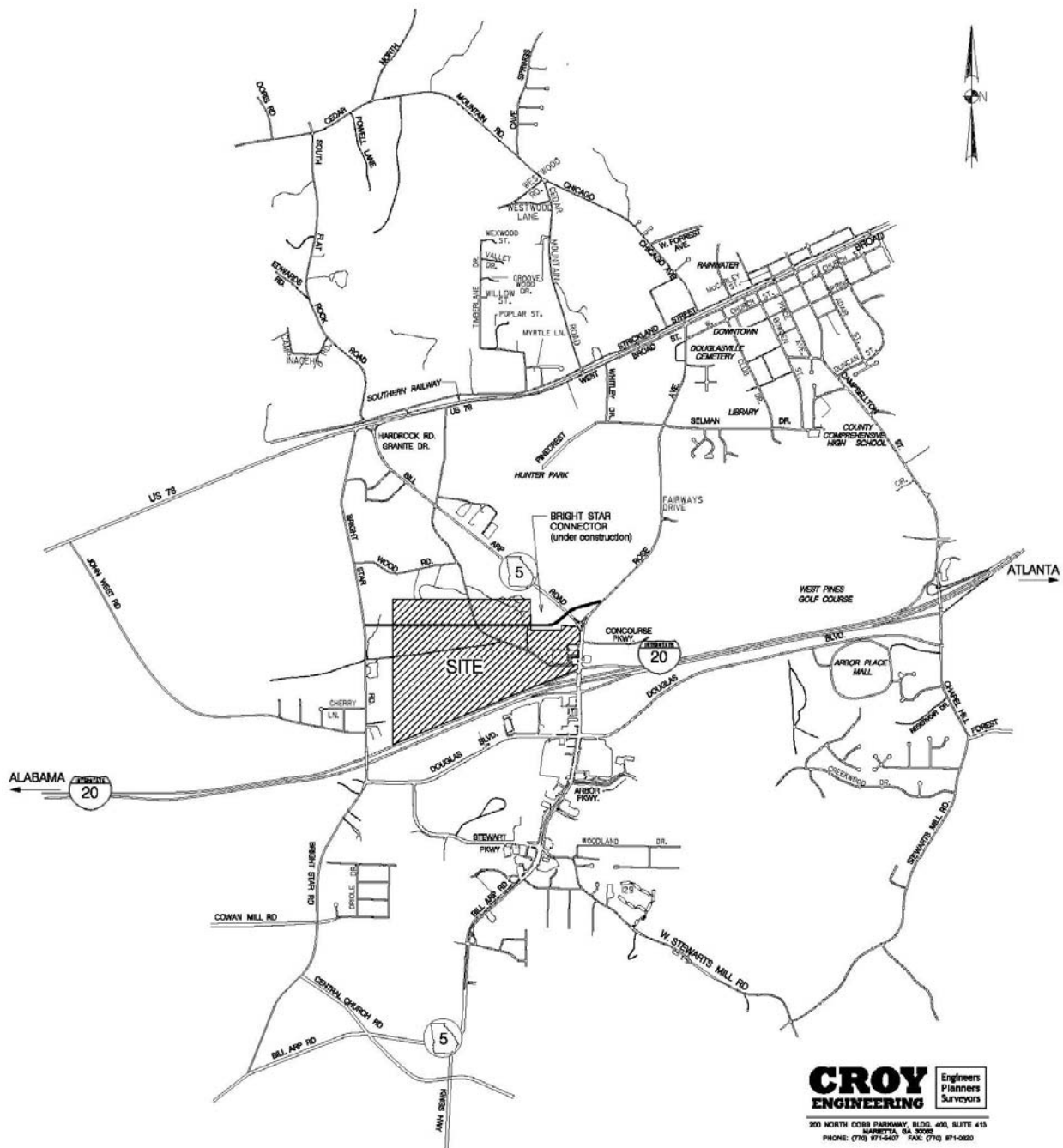


Figure 1 Location Map

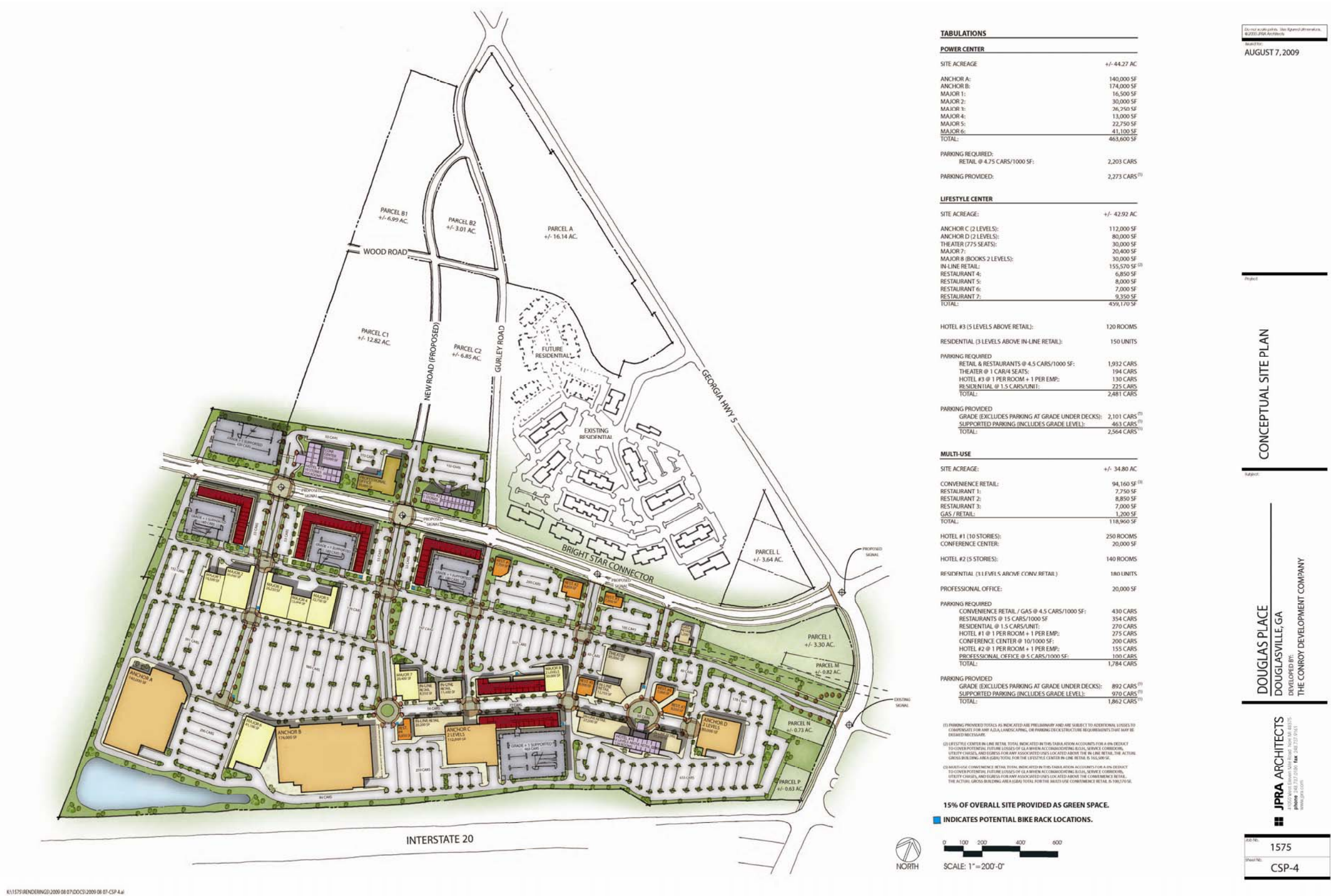


Figure 2 Site Map

2. TRAFFIC ANALYSES METHODOLOGY & ASSUMPTIONS

Growth Rate

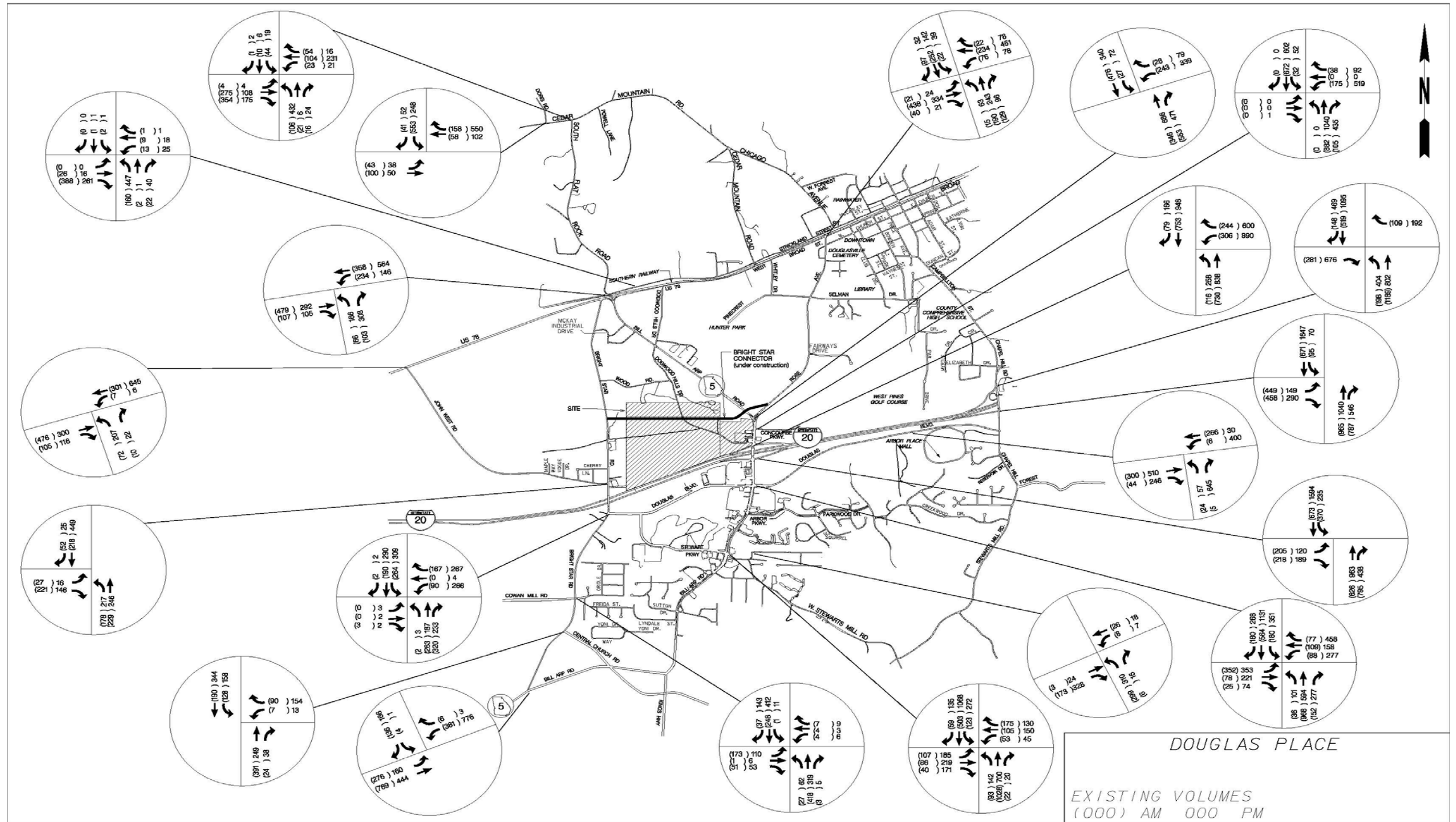
To project future year background traffic, data was obtained from GDOT at count stations in the immediate area of the Douglas Place development. Table 1 identifies the count stations' locations and the reported average daily traffic volumes from 2002 to 2007. The average growth rate over this period was then calculated.

From the available data evaluated for the percent growth between these years, five of the eight stations actually showed a decrease in daily volumes and two others exhibited less than single digit percent growth. The average growth rate for the three stations that exhibited a growth in traffic was 1.34%. To use a more conservative approach, a growth rate of 2% will be applied to the current turning movement count data that has been collected to establish the future traffic volumes for build-out year of 2014.

Table 1 Historic Traffic Volumes and Percent Change							
Roadway	2002	2003	2004	2005	2006	2007	Avg % Change
SR 5 north of Dogwood Rd	10,224	9,713	11,327	11,290	10,700	11,380	2.57
SR 5 south of Concourse Parkway	NR	29,354	32,788	31,930	26,870	33,690	0.9
SR 5 south Stewart Pkwy	14,893	13,447	13,181	14,220	14,000	14,010	-0.43
I-20 east of SR 5	97,056	89,621	94,803	93,020	95,390	97,630	0.56
Bright Star Rd south of Wood Rd	7,843	7,904	7,493	7,710	7,390	7,400	-1.27
Rose Ave northeast of SR 5	10,040	9,725	9,894	10,190	9,750	9,750	-0.01
US 78 west of SR 5	11,771	NR	10,597	9,390	11,170	10,110	-2.46
US 78 east of SR 5	10,837	12,523	11,980	9,390	11,290	11,000	-1.22

Traffic Data Collection

Data was collected by performing turning movement counts during the morning, evening, and Saturday peak periods. The counts were conducted Spring 2009 while Douglas County schools were in session. The peak hour of the entire network are shown on Figure 3 for the morning (7:30 am to 8:30 am) and evening (5 pm to 6 pm) peak hour and Figure 4 for the Saturday afternoon peak hour (2 pm to 3 pm).



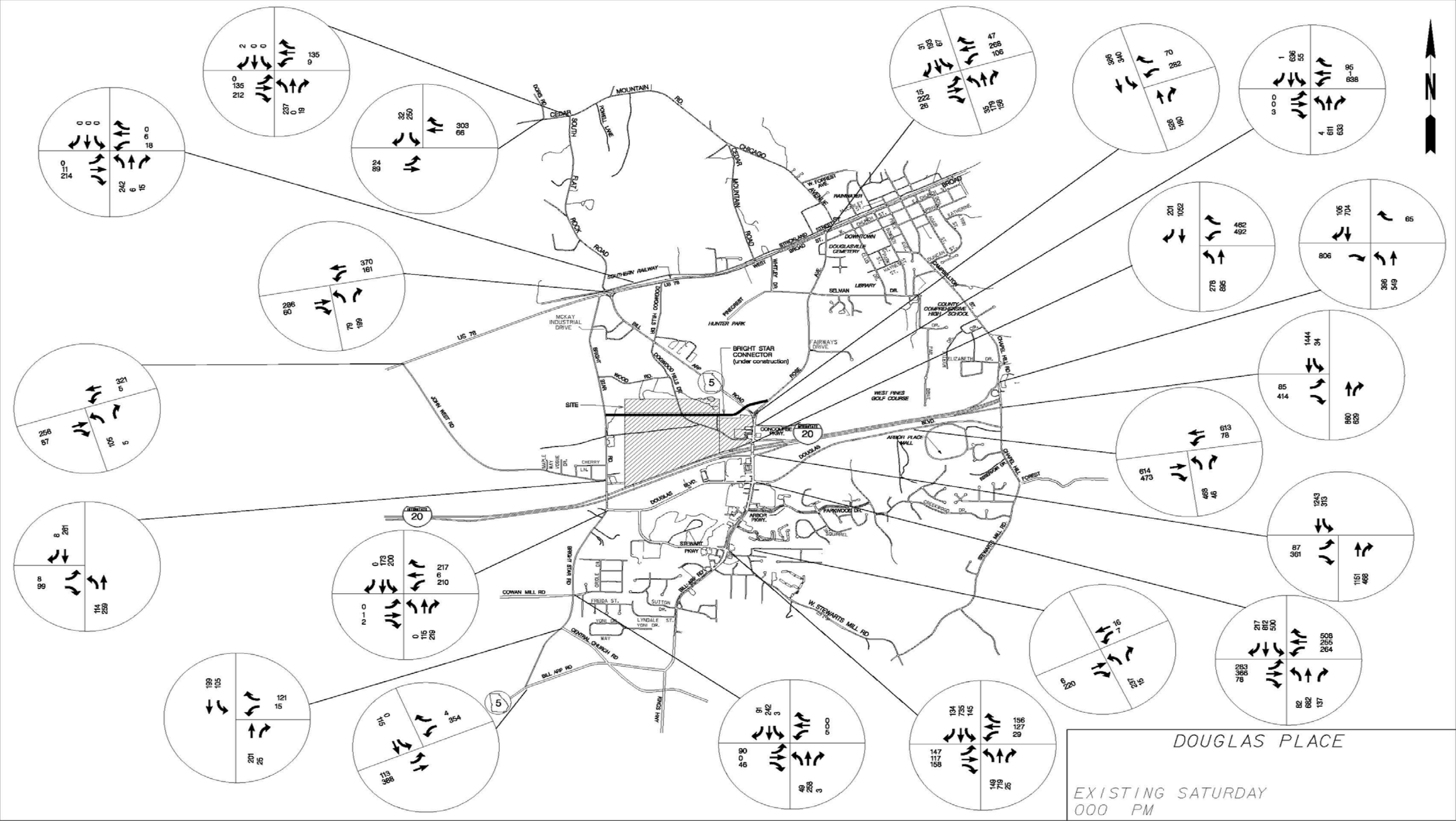


Figure 4 Existing Saturday Peak Hour Volumes

Detailed Intersection Analysis

For this study, the methodology used to evaluate traffic operations at each of the intersections of the Douglas Place study network is based on the criteria set forth in the Transportation Research Board's Highway Capacity Manual, 2000 edition, (HCM). Synchro software, which utilizes the HCM methodology, was used for the analyses. The following is a description of the methodology for the analysis of the unsignalized and signalized intersections.

Unsignalized Intersections

The methodology used for evaluating traffic operations at the stop controlled intersection is based on the criteria set forth in the Transportation Research Board's Highway Capacity Manual, 2000 edition (HCM 2000) (Appendix C – Chapter 17 – Unsignalized Intersections). The data was analyzed in Synchro, which utilizes the HCM 2000 methodology. The following is a description of the method used for the analysis of the unsignalized intersections.

For unsignalized intersections, Level of Service (LOS) is defined by average control delay per vehicle which includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Several factors affect the controlled delay for unsignalized intersections such as availability and distribution of gaps in the conflicting traffic stream, critical gaps, and follow-up time for a vehicle in the queue.

LOS is assigned a letter designation from A through F. LOS A indicates operations with minimal delay to motorists, while LOS F exists when there are insufficient gaps of acceptable size to allow vehicles on the side street to cross safely, resulting in extremely long total delays and long queues.

The table below shows the Level of Service assignments and their associated range of average control delays in seconds, for unsignalized (stop controlled) intersections.

Table 2 Level of Service Criteria for Unsignalized Intersections	
Unsignalized Level of Service	Unsignalized Average Control Delay (sec/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: 2000 Highway Capacity Manual

Signalized Intersections

For intersections controlled by a traffic signal, the LOS is defined in terms of the average control delay per vehicle. The average control delay is composed of the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The LOS criteria for signalized intersections, based on the average controlled delay, are shown in Table 3. LOS is assigned a letter designation A through F. LOS A indicates operations with minimal delay to motorists, while LOS F describes operations with extremely high average controlled delay. LOS E is typically considered to be the limit of acceptable delay while LOS F is considered unacceptable by most drivers.

Table 3 Level of Service Criteria for Signalized Intersections	
Level of Service	Controlled Delay Per Vehicle (sec)
A	≤ 10
B	$> 10 \text{ and } \leq 20$
C	$> 20 \text{ and } \leq 35$
D	$> 35 \text{ and } \leq 55$
E	$> 55 \text{ and } \leq 80$
F	> 80

3. STUDY NETWORK

Gross Trip Generation

The study network was determined using the methodology as defined in the GRTA Technical Guidelines for DRIs. The total daily traffic to be generated by Douglas Place was estimated using rates as defined in the ITE's publication Trip Generation, 8TH edition; more detail on the methodology for estimating site generated traffic is given in the Trip Generation section of this report.

For the types of land use activity and the amount of development for each of these, (for example square feet of retail and number of hotel rooms), the gross daily two-way site generated trips were estimated to be 43,795 vehicles per day.

Trip Distribution

At the initial Methodology Meeting, a trip distribution was presented that was developed primarily utilizing the magnitude of the average daily traffic volumes on the major routes that will be traversed by the Douglas Place generated volumes. Through discussions with GRTA and Douglas County plus incorporating additional traffic data supplied by Douglas County, a revised directional distribution was developed. More detail on the methodology on the assignment of site generated traffic is given in the Trip Distribution section of this report.

Level of Service Standards

In the Methodology section of the Letter of Understanding, the Level of Service Standard for all analyses shall be LOS D. But if an intersection or segment operates at LOS E for a certain peak period, then the LOS standard for that intersection or segment for “base” or “future” conditions becomes LOS E (only for that intersection and only for that time period). The “base” is the phase year traffic without the development traffic (also called “Future no-build” conditions) and the “future” is the phase year with the development traffic (also called future “build” conditions). If the existing LOS for the segment or the intersection is LOS F, then the future “no-build” and future “Build” LSO standard will be LOS E.

Study Network Determination

Where the generated volumes exceeded 7% of the capacity of the roadway, given its characteristics (number of lanes, number of signals per mile, etc.) as defined in the DRI Technical Guidelines, that roadway and intersection were included in the analysis. Also during the Pre-Application and Methodology Meeting, interested parties reviewed and commented on the intersections to be studied, expanding the study network. With this input, the entire network was defined and the calculations showing the 7% analysis are given in Table 4. The 21 existing intersections to be included in the analysis are listed below:

US 78/John West Road
US 78/Bill Arp Road (SR 5)
US 78/Rose Avenue
West Strickland Avenue/South Flat Rock Road
Bill Arp Road (SR 5)/Rose Avenue
Bill Arp Road (SR 5)/Concourse Parkway
Bill Arp Road (SR 5)/I-20 westbound ramps
Bill Arp Road (SR 5)/I-20 eastbound ramps
Bill Arp Road (SR 5)/Douglas Boulevard
Bill Arp Road (SR 5)/Stewart Parkway-West Stewarts Mill Road
Bill Arp Road (SR 5)/Bright Star Road
Bright Star Road/Bright Star Connector
Bright Star Road/John West Road
Bright Star Road/ Douglas Boulevard
Bright Star Road/Cowan Mill Road
Bright Star Road/Central Church Road
Douglas Boulevard/Arbor Place Mall Entrance
West Stewarts Mill Road/Woodland Drive/Pony Thomas Drive
I-20 eastbound ramp at Chapel Hill Road
I-20 westbound ramp at Chapel Hill Road
Dorris Road/Cedar Mountain Road and South Flat Rock Road/Cedar Mountain Road

DOUGLAS PLACE DRI STUDY NETWORK DETERMINATION

Roadway Segment	Facility Type	Facility LOS Standard	Facility Service Volume @ Standard (vpd)	Adjusted Facility Service Volume @ Standard (vpd)	Project Traffic Distribution	Project Trips Assigned	% Service Volume Consumed	Presumptive Impact (>7%)?
Bright Star Rd	2L-0	D	14,600	14,600	1%	437	3.0%	No
US 78 to Bright Star Conn	2L-1	D	14,600	11,680	13%	5,687	48.7%	Yes
Bright Star Conn to John West Road	2L-1	D	14,600	14,600	8%	3,500	24.0%	Yes
John West Road to Douglas Blvd	2L-1	D	14,600	11,680	2%	875	7.5%	Yes
Douglas Blvd to Cowan Mill Rd	2L-0	D	14,600	11,680	2%	875	7.5%	Yes
Cowan Mill Rd to Central Church Rd	2L-0	D	14,600	14,600	1%	437	3.0%	No
Central Church Rd to Bill Arp Rd/SR 5								
Bill Arp Rd/SR 5	2L-1	D	16,600	16,600	5%	2,187	13.2%	Yes
US 78 to Bright Star Conn/Rose Ave	4L-3	D	27,800	27,800	55%	24,061	86.6%	Yes
Bright Star Conn/Rose Ave to Concourse Pkwy	4L-3	D	27,800	27,800	73%	31,936	114.9%	Yes
Concourse Pkwy to I-20 WB Ramps	4L-3	D	27,800	27,800	43%	18,812	67.7%	Yes
I-20 WB Ramps to I-20 EB Ramps	4L-3	D	27,800	27,800	13%	5,687	20.5%	Yes
I-20 EB Ramps to Douglas Blvd	4L-3	D	27,800	27,800	8%	3,500	12.6%	Yes
Douglas Blvd to Stewart Pkwy	4L-1	D	35,000	35,000	5%	2,187	6.2%	No
Stewart Pkwy to King's Hwy								
US 78	4L-1	D	35,000	35,000	1%	437	1.2%	Yes
John West Road to Bill Arp Road	2L-1	D	16,600	16,600	3%	1,312	7.9%	Yes
Bill Arp Road to Rose Ave	2L-2	D	14,900	14,900	2%	875	5.9%	No
Rose Avenue to Dallas Highway								
Rose Ave	2L-1	D	16,600	16,600	6%	2,625	15.8%	Yes
Bill Arp Rd/SR 5 to US 78								
Douglas Blvd	4L-2	D	32,500	32,500	6%	2,625	8.1%	Yes
Bright Star Rd to Stewart Parkway	4L-2	D	32,500	32,500	4%	1,750	5.4%	Yes
Stewart Parkway to Bill Arp Rd/SR 5	4L-2	D	32,500	32,500	9%	3,937	12.1%	Yes
Bill Arp Rd/SR 5 to Arbor Place Mall Entranc	4L-2	D	32,500	32,500	4%	1,750	5.4%	No
Arbor Place Mall Entrance to Chapel Hill Ro								
John West Road	2L-1	D	14,600	11,680	5%	2,187	18.7%	Yes
US 78 to Bright Sar Road								

Table 4 Study Network Determination Calculations

Existing Facilities

Listed below is a brief description of the roadways that will be traversed by traffic generated by the Douglas Place mixed-use development. The lane configuration of the intersections of these roadways is shown in Figure 5.

Table 5 Existing Facilities		
Roadway	Number of Lanes	GDOT Functional Classification
US 78	4	Urban Minor Arterial
Bill Arp Road North of Concourse Pkwy	2	Urban Minor Arterial
Bill Arp Road South of Concourse Pkwy	4	Urban Principal Arterial
Bright Star Rd	2	Urban Collector Street
Rose Ave	2	Urban Collector Street
Interstate 20	6	Urban Interstate Principal Arterial
Douglas Blvd	4	Urban Minor Arterial
John West Road	2	Urban Local Street
Concourse Parkway	4	Urban Local Street
Chapel Hill Road	4	Urban Minor Arterial
West Stewarts Parkway	2	Urban Local Street
South Flat Rock Road	2	Urban Local Street
Dorris Road	2	Urban Collector Street
Cedar Mountain Road	2	Urban Collector Street
Cowan Mill Road	2	Urban Local Street
Central Church Road	2	Urban Collector Street

With the construction of the Bright Star Road Connector almost completed, an additional intersection to be studied, bringing the total to 22, in the build-out year scenarios will be Bright Star Road/Bright Star Road Connector. Also, GDOT has a pending construction project to realign and improve the Bill Arp Road (SR 5)/Rose Avenue. The fourth/western leg of this intersection will be the Bright Star Connector Road. The build-out year analyses will incorporate the design for the reconfigured intersection. A third modification to the existing intersections is at Bill Arp Road (SR 5)/Bright Star Road. Douglas County has designed an improvement to this intersection and the designed lane configuration and assignments will be used in the build-out year analyses.

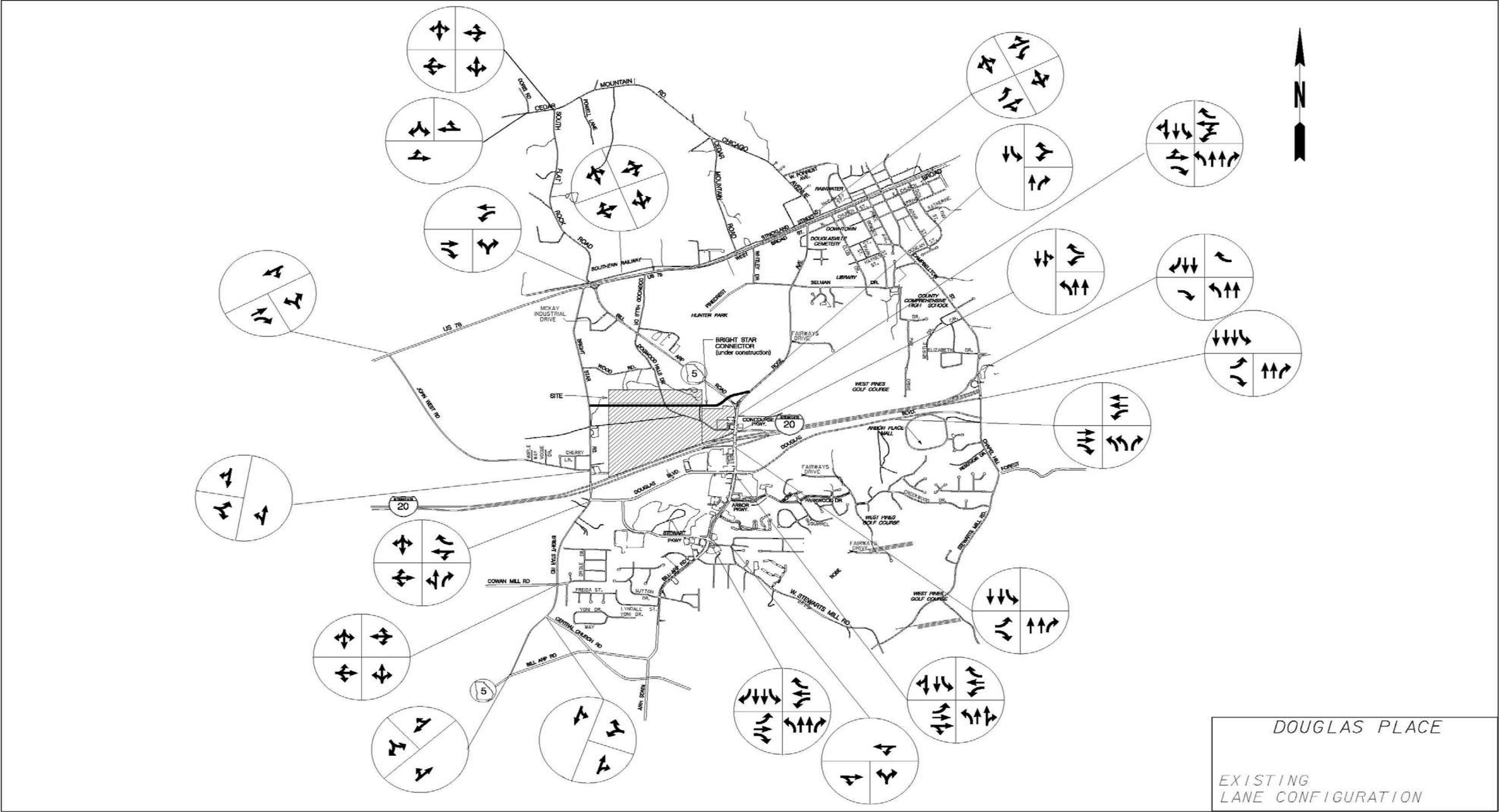


Figure 5 Lane Configurations

4. TRIP GENERATION

The trips to be generated by the different land use activities at the Douglas Place mixed-use development were calculated using ITE's publication Trip Generation, 8th edition for the amount of the development projected to be completed by the build-out year of 2014. The reference for the amount of each type of land use at full build-out is Conceptual Site Plan No. 4 (CSP-4) prepared by JPRA Architects dated May 1, 2008. This information, which reflects the full build-out of the Douglas Place development, along with the corresponding Land Use Code per Trip Generation is shown in Table 6.

Table 6 Development Components		
Land Use Activity	Amount	ITE Land Use Code
Residential	330 dwelling units	230
Retail/Commercial	955,730 square feet	820
Restaurant	54,800 square feet	932
Theater	775 seats	445
Hotel	510 rooms	310
Office	20,000 square feet	710
Gasoline/Retail	1,200 square feet	945

For certain types of developments, methodologies are presented by ITE to identify the estimated site generated traffic due to internal capture of trips between the different land use activities within a mixed-use development and pass-by traffic at a retail site. Applying these methodologies, the number of internal capture trips between the residential, office, retail, and restaurant land use activities were calculated. For the retail component, after reducing the trips for internal capture, the amount of pass-by traffic was calculated. For the morning, evening, and Saturday afternoon peak hours, the gross generated trips, the reductions in trips due to internal capture and pass-by resulting in the net Douglas Place site generated trips are shown in Table 7.

Table 7 Generated Trips with Reductions							
Land Use Activity	A.M. Peak Hour		P.M. Peak Hour		Saturday Peak		Daily
	Enter	Exit	Enter	Exit	Enter	Exit	2-way
Residential	23	111	107	53	75	64	1,818
Mixed-use Reduction	--	--	28	15	42	51	
Restaurant	0	0	361	251	409	362	6,968
Mixed-use Reduction	--	--	60	42	21	22	
Pass-by	--	--	135	94	175	153	
Theater	NR	NR	22	40	30	28	NR
Retail/Commercial	356	228	1,414	1,472	1,933	1,784	29,455
Mixed-use Reduction	--	--	43	43	56	43	
Pass-by	--	--	274	286	375	348	
Office	46	6	17	84	5	5	386
Mixed-use Reduction			5	21	3	1	
Hotel	188	120	159	141	195	153	4,191
Gas/Retail	49	47	58	58	NR	NR	977
TOTAL	662	512	1,592	1,598	1,975	1,778	43,795

5. TRIP DISTRIBUTION & ASSIGNMENT

Through the Methodology review and input from interested parties, the overall orientation/directional distribution of traffic generated by the Douglas Place mixed-use development was determined. The directional distribution is shown in Figure 6.

The peak hour periods net entering and exiting site-generated volumes were then assigned to the network as particular maneuvers at the intersections within the study network. The morning and evening generated volumes are shown on Figure 7 and the Saturday afternoon generated volumes are shown on Figure 8.

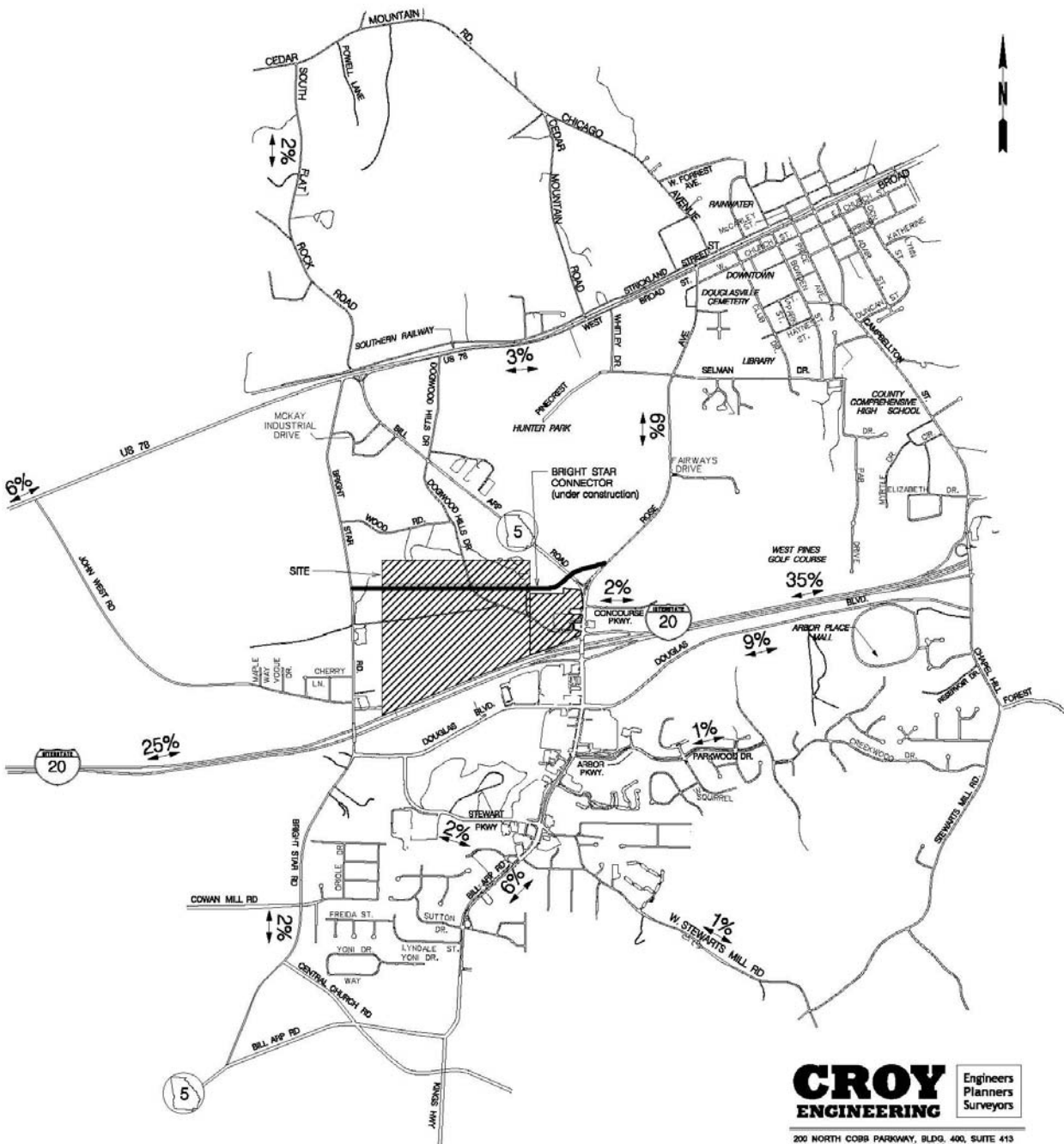


Figure 6 Directional Distribution

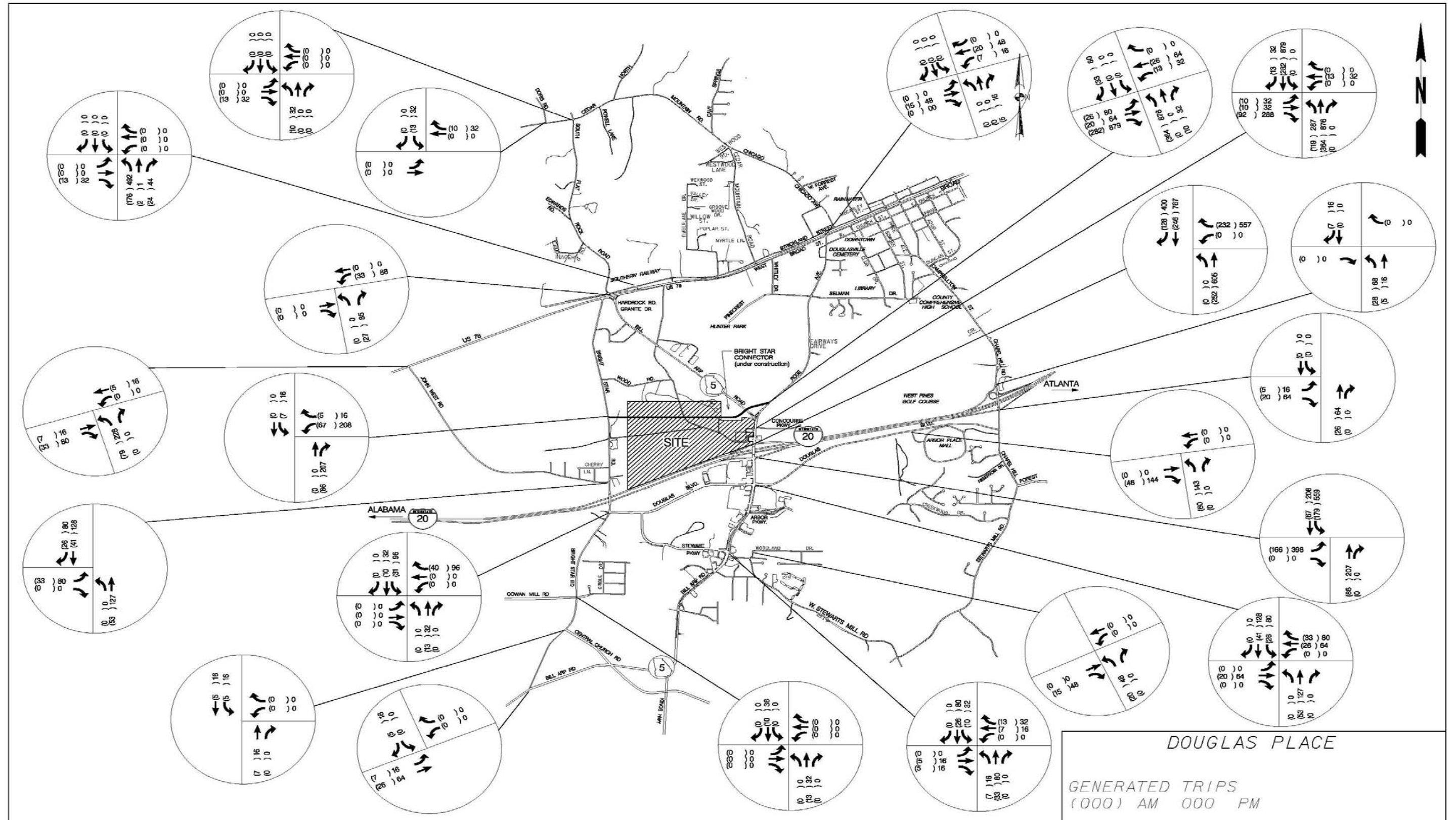


Figure 7 AM and PM Generated Trips

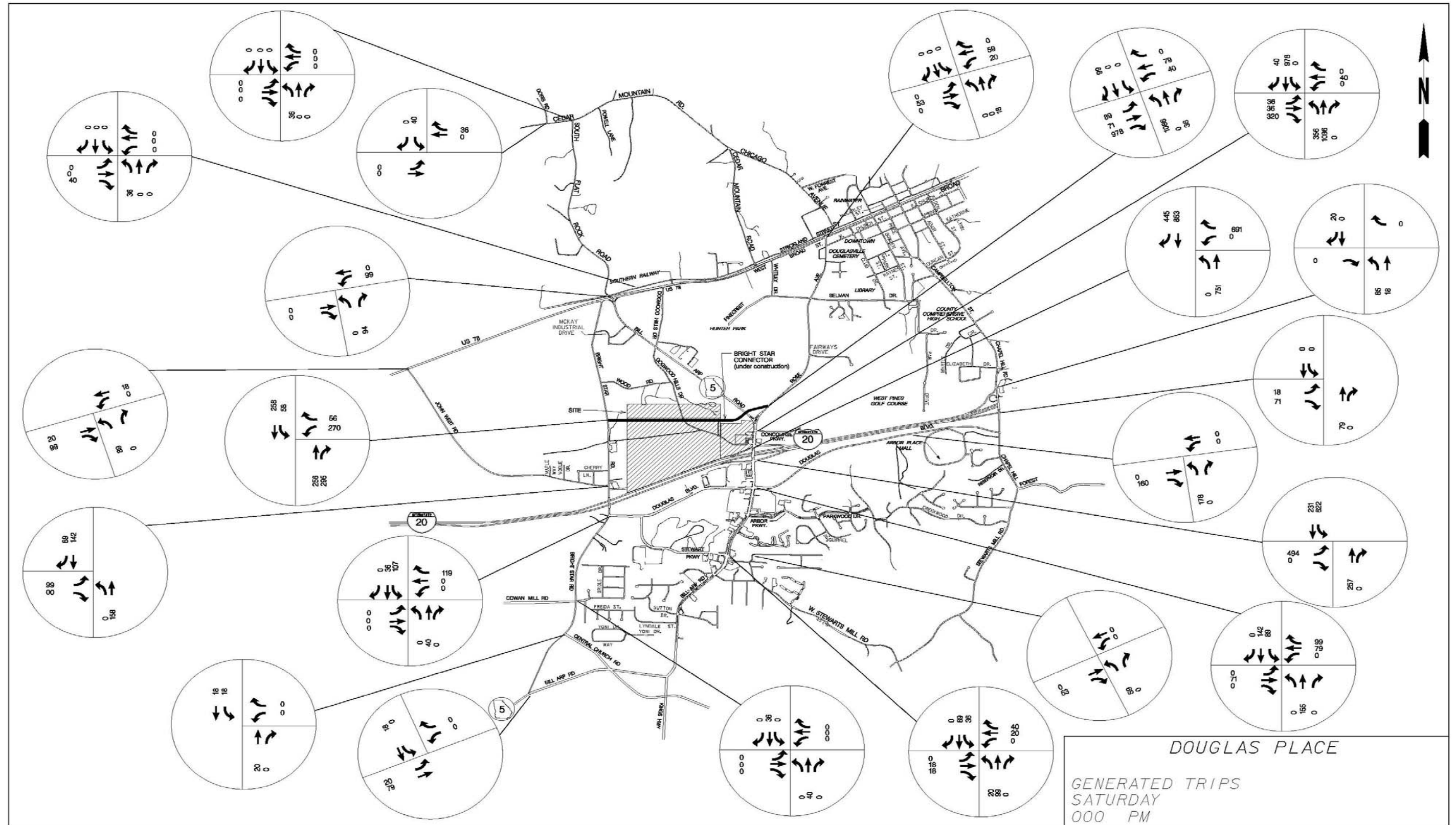


Figure 8 Saturday Generated Trips

6. TRAFFIC ANALYSIS

Existing Operations

For the traffic volume data collected during the peak period counts (refer to Figure 3 for morning and evening and Figure 4 for Saturday afternoon), the current lane assignments and configurations, and the traffic control that is in place (signal timing data was obtained from GDOT District 7 and Douglas County DOT), the LOS and delays were calculated for each of the intersections. The worksheets are in the Existing Operations section of the Appendix and the results of the analyses for the morning peak hour, evening peak hour, and Saturday afternoon peak hour are shown in Table 8.

From the results in Table 8, some of the intersections in the study network currently do not operate at LOS D. For US 78/John West Road, the northbound approach during the evening peak hour operates at LOS F. This condition is caused primarily by the heavy through volumes on US 78 not creating a sufficient number of gaps for left turning vehicles to proceed west. For Bill Arp Road (SR 5)/Rose Avenue, the westbound approach operates at LOS F for all three peak hours. This condition will be corrected when GDOT completes its programmed realignment and improvement of the intersection. The contract calls for the intersection improvement project to be completed February 2011. Bill Arp Road (SR 5)/Concourse Parkway is operating at LOS E during the evening and Saturday afternoon peak hour. Bill Arp Road (SR 5)/Douglas Boulevard is operating at LOS E during the evening peak hour and LOS F during the Saturday afternoon peak hour. This intersection LOS F is mainly a result of the LOS F for the southbound left-turn maneuver. The westbound approach of West Strickland Road at South Flat Rock Road is operating at a LOS F during the evening peak hour. For the 20 vehicles on this approach during the evening peak hour, the traffic to and from US 78 on South Flat Rock Road do not provide sufficient gaps for traffic to enter the intersection.

Table 8
Existing Operations

	A.M. Peak Hour		P.M. Peak Hour		Saturday Peak Hour	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
US 78 at John West Road						
Northbound Approach	C	19.2	F	76.9	C	16.0
Westbound Approach	A	0.3	A	0.2	A	0.2
US 78 at Bill Arp Rd (SR 5)	B	14.4	C	20.8	B	13.3
US 78 at Rose Ave	C	26.9	B	19.9	B	19.2
Bill Arp Rd (SR5) at Rose Ave						
Northbound Approach	A	0	A	0	A	0
Southbound Approach	A	0.4	A	9.9	B	5.1
Westbound Approach	F	92.1	F	838.0	F	Err
Bill Arp Rd (SR 5) at Concourse Pkwy	B	10.1	E	60.6	E	58.3
Bill Arp Rd (SR 5) at I-20 WB Ramp	B	19.6	D	51.1	D	50.4
Bill Arp Rd (SR 5) at I-20 EB Ramp	C	21.6	B	18.6	D	37.3
Bill Arp Rd (SR 5) at Douglas Blvd	D	40.4	E	59.3	F	85.1
Bill Arp Rd (SR 5) at Stewart Pkwy	D	35.5	D	49.0	D	46.5
Bright Star Rd at John West Rd						
Eastbound Approach	B	14.7	C	18.2	B	11.4
Northbound Approach	A	4.5	A	5.7	A	3.2
Bright Star Rd at Douglas Blvd	B	14.0	C	26.0	B	16.6
Bright Star Rd at Cowan Mill Rd						
Northbound Approach	C	20.2	C	18.1	B	11.8
Southbound Approach	B	13.1	D	33.5	B	11.7
Westbound Approach	A	9.6	B	10.2	A	9.2
Eastbound Approach	B	13.2	B	12.8	B	10.1
Bright Star Rd at Central Church Rd						
Westbound Approach	B	12.9	B	12.9	B	11.3
Southbound Approach	A	4.2	A	3.6	A	3.3
Douglas Blvd at Arbor Place Mall	A	3.8	B	10.9	A	13.4
Cedar Mountain Rd at Dorris Rd	B	17.5	B	14.0	A	9.8
Cedar Mountain Rd at Flat Rock Rd	A	8.4	B	15.3	B	10.6
West Stewarts Mill Rd at Woodland Dr						
Westbound Approach	A	8.3	A	8.7	A	8.1
Eastbound Approach	A	8.4	B	11.1	A	8.6
Northbound Approach	B	11.1	B	12.9	B	10.2
I-20 WB Ramp at Chapel Hill Rd						
Westbound Approach	B	10.3	B	10.5	A	9.5
Northbound Left-turn	A	9.6	D	27.7	B	13.6
I-20 EB Ramp at Chapel Hill Rd	C	27.9	B	18.3	C	24.3
Bill Arp Rd (SR 5) at Bright Star Rd						
Southbound Approach	C	15.4	D	25.2	B	11.7
Eastbound Approach	A	6	A	5.3	A	2.8
West Strickland St at US78 RR Crossing						
Westbound Approach	C	22.4	F	72.0	C	22.1
Eastbound Approach	B	11.4	B	11.9	A	9.8
Northbound Approach	A	6.6	A	7.7	A	7.1
Southbound Approach	A	4.9	A	3.7	A	0.0

Year 2014 No-Build Operations

Existing traffic was grown at a rate of 2% per year to the build-out year of 2014. The morning and evening year 2014 volumes are shown on Figure 9 and the Saturday afternoon year 2014 volumes are shown on Figure 10.

For these projected volumes and the existing intersection conditions, operations were evaluated. The exceptions were the GDOT and Douglas County improvements projects at Bill Arp Road (SR 5)/Rose Avenue and Bill Arp Road (SR 5)/Bright Star Road where the programmed intersection modifications were used in the analysis. The worksheets are in the 2014 No-Build Operations section of the Appendix and the results of the analyses for the morning peak hour, evening peak hour, and Saturday afternoon peak hour are shown in Table 9.

From the results in Table 9, some of the intersections in the study network would operate at conditions that do not meet the LOS D standard.

US 78/John West Road, the northbound approach during the evening peak hour operates at LOS F.

Bill Arp Road (SR 5)/Concourse Parkway would operate at LOS E during the Saturday afternoon peak hour.

Bill Arp Road (SR 5)/I-20 WB Off-ramp would operate at LOS E during the evening peak hour.

Bill Arp Road (SR 5)/Douglas Boulevard would operate at LOS E during the evening and LOS F during the Saturday afternoon peak hour.

Bright Star Road/Cowan Mill Road, the southbound approach would operate at LOS F during the evening peak hour.

The westbound approach of West Strickland Road at South Flat Rock Road is operating at a LOS F during the evening peak hour. However, there are only 20 vehicles on this approach during the evening peak hour.

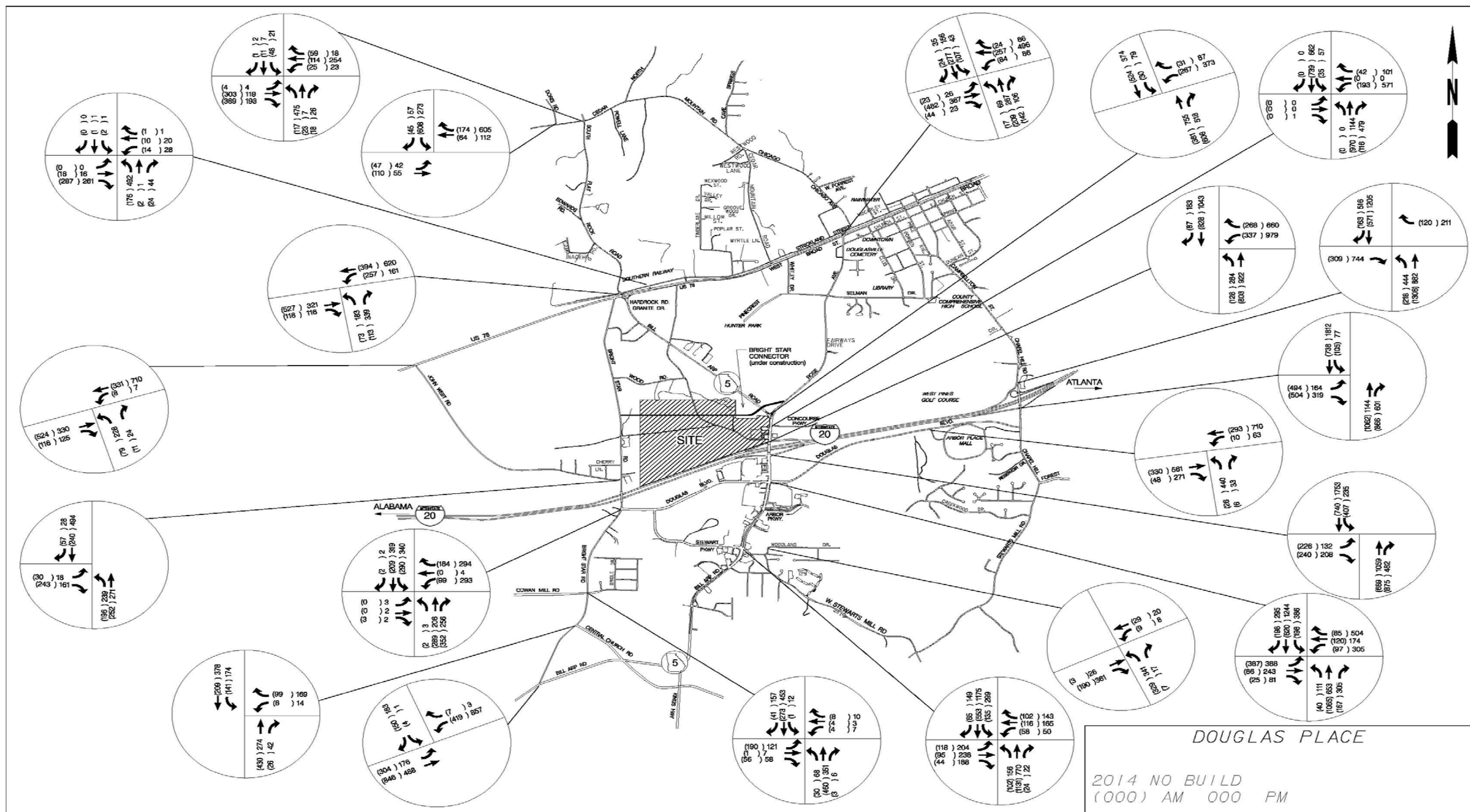


Figure 9 2014 AM and PM No Build Volumes

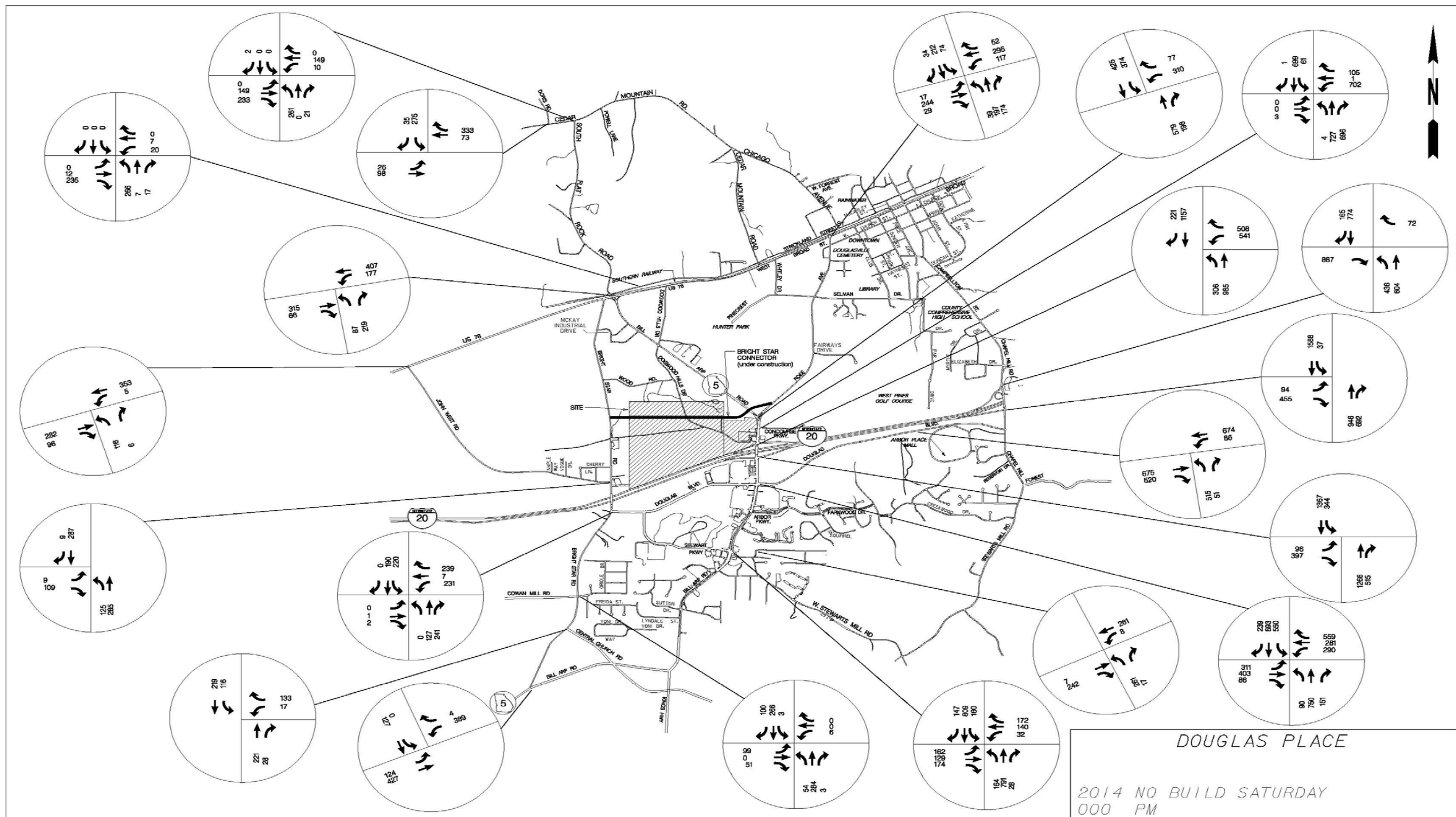


Figure 10 2014 Saturday No Build Volumes

Table 9
2014 No-Build Operations

	A.M. Peak Hour		P.M. Peak Hour		Saturday Peak Hour	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
US 78 at John West Road						
Northbound Approach	C	22.4	F	156.5	C	17.8
Westbound Approach	A	0.3	A	0.2	A	0.2
US 78 at Bill Arp Rd (SR 5)	B	14.7	C	23.6	B	14.2
US 78 at Rose Ave	C	30.0	C	22.7	C	20.6
Bill Arp Rd (SR 5) at Rose Ave	C	22.6	C	24.6	C	30.7
Bill Arp Rd (SR 5) at Concourse Pkwy	B	11.9	C	25.8	E	55.6
Bill Arp Rd (SR 5) at I-20 WB Ramp	B	16.7	E	57.2	D	48.4
Bill Arp Rd (SR 5) at I-20 EB Ramp	B	18.8	B	14.7	C	31.4
Bill Arp Rd (SR 5) at Douglas Blvd	D	48.7	E	73.8	F	93.9
Bill Arp Rd (SR 5) at Stewart Pkwy	D	35.6	D	48.9	D	48.6
Bright Star Rd at John West Rd						
Eastbound Approach	C	16.9	C	22.5	B	12.0
Northbound Approach	A	4.7	A	6.2	A	3.3
Bright Star Rd at Douglas Blvd	B	16.7	C	32.2	B	18.0
Bright Star Rd at Cowan Mill Rd						
Northbound Approach	D	28.2	C	23.1	B	13.1
Southbound Approach	C	15.2	F	60.0	B	13.1
Westbound Approach	B	10.1	B	10.7	A	9.5
Eastbound Approach	B	14.9	B	13.8	B	10.7
Bright Star Rd at Central Church Rd						
Westbound Approach	B	13.8	B	14.0	B	11.9
Southbound Approach	A	4.5	A	3.9	A	3.4
Douglas Blvd at Arbor Place Mall	A	3.9	B	11.9	B	14.4
Cedar Mountain Rd at Dorris Rd	B	16.7	B	16.8	B	10.4
Cedar Mountain Rd at Flat Rock Rd	A	9.5	B	19.3	B	11.6
West Stewarts Mill Rd at Woodland Dr						
Westbound Approach	A	8.5	A	8.9	A	8.3
Eastbound Approach	A	8.8	B	12.4	A	9.0
Northbound Approach	B	11.9	B	14.5	B	10.9
I-20 WB Ramp at Chapel Hill Rd						
Westbound Approach	B	10.2	B	10.5	A	9.2
Northbound Left-turn	B	10.0	F	50.3	C	16.2
I-20 EB Ramp at Chapel Hill Rd	C	30.0	B	19.3	C	25.0
Bill Arp Rd (SR 5) at Bright Star Rd						
Southbound Approach	C	16.2	D	32.7	B	12.4
Eastbound Approach	A	2.5	B	11.6	A	8.6
West Strickland St at US78 RR Crossing						
Westbound Approach	D	26.5	F	129.1	D	25.7
Eastbound Approach	B	12.1	B	13.1	B	10.1
Northbound Approach	A	6.7	A	7.8	A	7.2
Southbound Approach	A	4.9	A	3.7	A	0.0

Year 2014 with Douglas Place Traffic

The generated volumes were added to the year 2014 volumes to estimate the total traffic traversing the study network when the Douglas Place development is built out. The morning and evening year 2014 build volumes are shown on Figure 11 and the Saturday afternoon year 2014 build volumes are shown on Figure 12. These build volumes do take into account by-pass traffic at the three off-site access points to Douglas Place; Bill Arp Road (SR 5)/Bright Star Road Connector, Bill Arp Road (SR 5)/Concourse Parkway, and Bright Star Road/Bright Star Road Connector. For example, for southbound Bright Star Road, the through volumes are reduced by the by-pass traffic and reassigned as a southbound left turn for the entering maneuver and a westbound left turn for the exiting maneuver.

For these total volumes and the year 2014 intersection conditions, operations were evaluated. The worksheets are in the 2014 Build Operations section of the Appendix and the results of the analyses for the morning peak hour, evening peak hour, and Saturday afternoon peak hour are shown in Table 10.

From the results in Table 10, additional intersections in the study network exceed the requirement to operate at LOS D or their current LOS E.

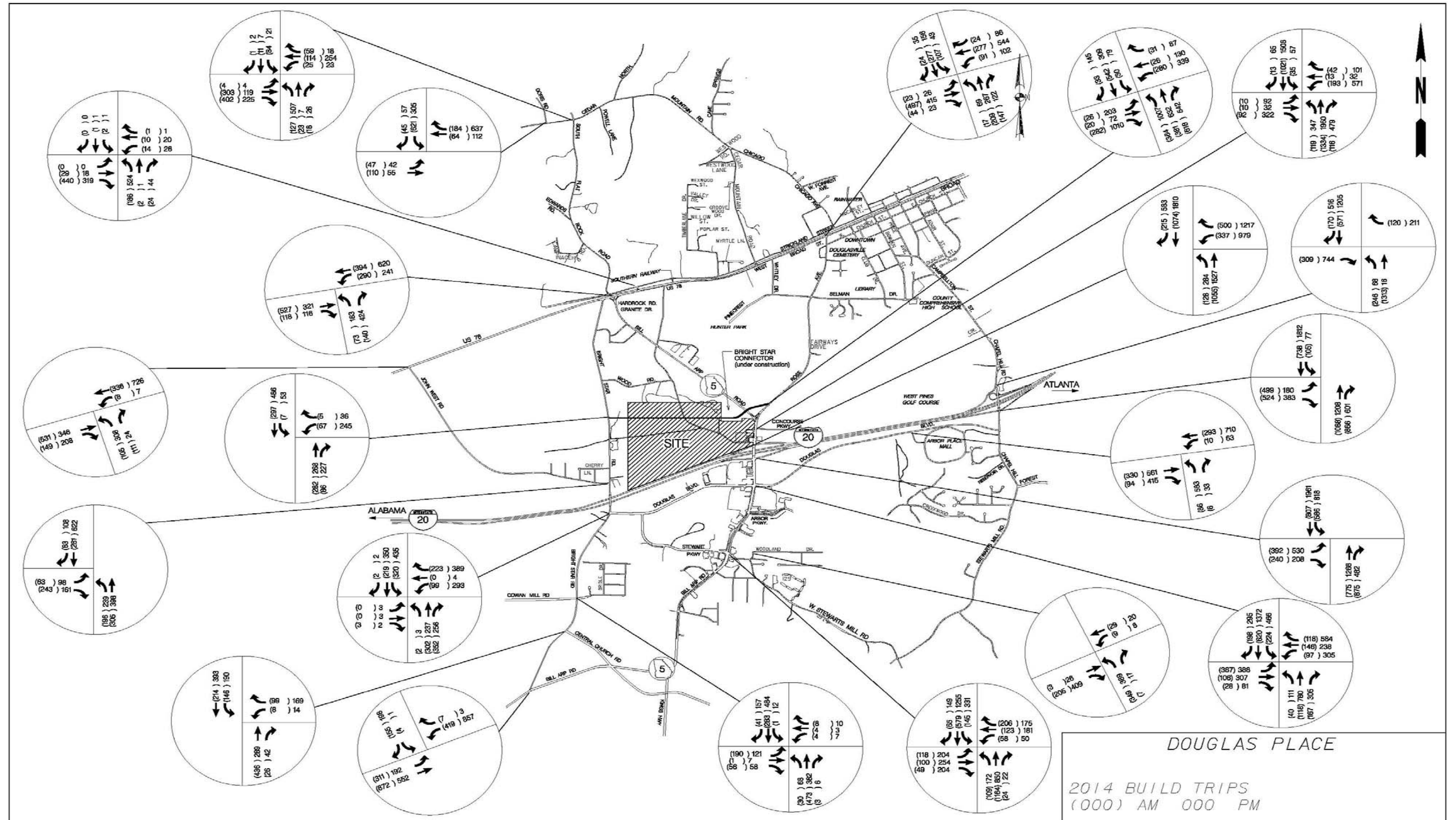


Figure 12 2014 Saturday Build Volumes

Table 10 2014 with Douglas Place						
	A.M. Peak Hour		P.M. Peak Hour		Saturday Peak Hour	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
US 78 at John West Road						
Northbound Approach	D	26.1	F	348.7	D	27.3
Westbound Approach	A	0.3	A	0.2	A	0.2
US 78 at Bill Arp Rd (SR 5)	B	16.2	C	27.7	B	17.3
US 78 at Rose Ave	C	32.4	C	26.1	C	23.0
Bill Arp Rd (SR 5) at Rose Ave	C	31.8	F	107.7	F	198.0
Bill Arp Rd (SR 5) at Concourse Pkwy	C	20.7	F	114.9	F	135.1
Bill Arp Rd (SR 5) at I-20 WB Ramp	C	24.4	F	191.6	F	246.1
Bill Arp Rd (SR 5) at I-20 EB Ramp	D	47.6	F	135.7	F	193.5
Bill Arp Rd (SR 5) at Douglas Blvd	D	53.5	F	115.0	F	135.1
Bill Arp Rd (SR 5) at Stewart Pkwy	D	36.7	D	52.5	D	51.7
Bright Star Rd at John West Rd						
Eastbound Approach	D	32.8	F	490.9	F	87.2
Northbound Approach	A	4.7	A	7.2	A	3.4
Bright Star Rd at Douglas Blvd	B	18.7	D	53.6	C	23.5
Bright Star Rd at Cowan Mill Rd						
Northbound Approach	D	31.1	D	26.7	B	14.9
Southbound Approach	C	15.9	F	76.9	B	14.8
Westbound Approach	B	10.2	B	10.7	A	9.7
Eastbound Approach	C	15.2	B	13.9	B	11.1
Bright Star Rd at Central Church Rd						
Westbound Approach	B	14.0	B	14.6	A	12.4
Southbound Approach	A	4.6	A	4.1	A	3.7
Douglas Blvd at Arbor Place Mall	A	5.8	B	13.7	B	18.0
Cedar Mountain Rd at Dorris Rd	B	16.9	B	17.7	B	11.2
Cedar Mountain Rd at Flat Rock Rd	A	8.8	B	19.9	B	12.9
West Stewarts Mill Rd at Woodland Dr						
Westbound Approach	A	8.6	A	9.3	A	8.6
Eastbound Approach	A	9.1	C	15.0	B	10.2
Northbound Approach	B	12.6	C	18.0	B	12.8
I-20 WB Ramp at Chapel Hill Rd						
Westbound Approach	B	10.3	B	10.8	B	11.2
Northbound Left-turn	B	10.2	F	84.7	C	20.2
I-20 EB Ramp at Chapel Hill Rd	C	31.2	C	22.8	C	29.2
Bill Arp Rd (SR 5) at Bright Star Rd						
Southbound Approach	C	16.5	E	36.1	B	12.9
Eastbound Approach	A	9.7	B	3.1	A	8.7
West Strickland St at US78 RR Crossing						
Westbound Approach	D	28.6	F	199.9	D	32.9
Eastbound Approach	B	12.3	B	14.0	B	10.4
Northbound Approach	A	6.7	A	8.0	A	7.3
Southbound Approach	A	4.9	A	3.7	A	0.0
Bright Star Rd at Bright Star Connector						
Westbound Approach (left turn)	C	15.7	F	143.8	F	74.7
Southbound Approach	A	0.3	A	1.5	A	2.2

Year 2014 with Douglas Place Traffic with Improvements

To mitigate the impacts of the Douglas Place site-generated traffic, improvement scenarios were developed and evaluated. Only those intersections that did not the LOS standard were included in this evaluation.

The worksheets are in the 20014 Build Operations with Improvements section of the Appendix and the results of the analyses are shown in Table 11. These indicate that all of the intersections that exceeded the LOS standards will operate at the required LOS standard; Bill Arp Road (SR 5)/Douglas Boulevard and Bill Arp Road (SR 5) Concourse Parkway would return to operate at their base year LOS E.

Table 11 2014 with Douglas Place with Improvements						
	A.M. Peak Hour		P.M. Peak Hour		Saturday Peak Hour	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
Bill Arp Rd (SR 5) at Rose Ave	C	27.6	C	24.8	D	42.5
Bill Arp Rd (SR 5) at Concourse Pkwy	B	15.2	D	49.2	E	72.9
Bill Arp Rd (SR 5) at I-20 WB Ramp	B	10.1	C	27.4	B	23.4
Bill Arp Rd (SR 5) at I-20 EB Ramp	C	28.4	C	28.0	D	51.2
Bill Arp Rd (SR 5) at Douglas Boulevard	D	36.8	E	55.8	E	74.6
Bright Star Rd at John West Rd	B	11.5	D	44.2	B	10.9
Bright Star Rd at Bright Star Connector	A	4.6	A	9.1	A	8.3
Bankhead Hwy US78 at John West Rd	A	7.5	B	14.4	A	8.3
Chapel Hill Rd at I-20 WB Off Ramp	A	0.7	B	13.0	B	11.1
Cowan Mill Rd at Bright Star Rd	B	17.7	B	15.1	B	14.2

The summary of the improvements by location, the project sponsor, anticipated funding source (for larger inter-agency projects, multiple funding sources are listed), year open-to-traffic date, and estimate of the total project cost are shown in Table 12. The improvements are also depicted graphically on Figure 13.

Table 1 Summary of Improvements					
Intersection	Type of Improvement	Project Sponsor	Anticipated Funding Source	Year Open-to-Traffic	Estimate Project Cost
Bill Arp Rd (SR 5) at Rose Ave	Realignment, lane additions, and signalization	GDOT	GDOT	2010	\$2,460,000
Bill Arp Rd (SR 5) at Concourse Pkwy	Additional through lanes and second northbound left turn lane	GDOT	FHWA and GDOT	Long Range	Unknown; Cost will be part of HOV and interchange reconstruction project
Bill Arp Rd (SR 5) at I-20 WB Ramp	Additional through lanes, second northbound left turn lane, and off-ramp dual left turn lanes	GDOT	FHWA and GDOT	Long Range	Unknown; Cost will be part of HOV and interchange reconstruction project
Bill Arp Rd (SR 5) at I-20 EB Ramp	Additional through lanes, second southbound left turn lane, and off-ramp dual left turn lanes	GDOT	FHWA and GDOT	Long Range	Unknown; Cost will be part of HOV and interchange reconstruction project
Bill Arp Rd (SR 5) at Douglas Blvd	Dual left turn lane	City of Douglasville	GDOT and City of Douglasville	Unknown	Unknown
Bright Star Rd at John West Rd	Signalization or roundabout	Douglas County	Douglas County	Unknown	\$150,000 for signal; Unknown for roundabout
Bright Star Rd at Bright Star Connector	Signalization and turn lanes	City of Douglasville and Douglas County	City of Douglasville, Douglas County, and Developer	Unknown	\$150,000 for signal; Unknown for turn lanes
Bankhead Hwy US78 at John West Rd	Signalization	Douglas County	Douglas County	Unknown	\$150,000 for signal
Chapel Hill Rd at I-20 WB Off Ramp	Signalization	GDOT	GDOT	Unknown	\$150,000 for signal
Cowan Mill Rd at Bright Star Rd	Signalization or roundabout	Douglas County	Douglas County	Unknown	\$150,000 for signal; Unknown for roundabout

Table 12 Summary of Improvements

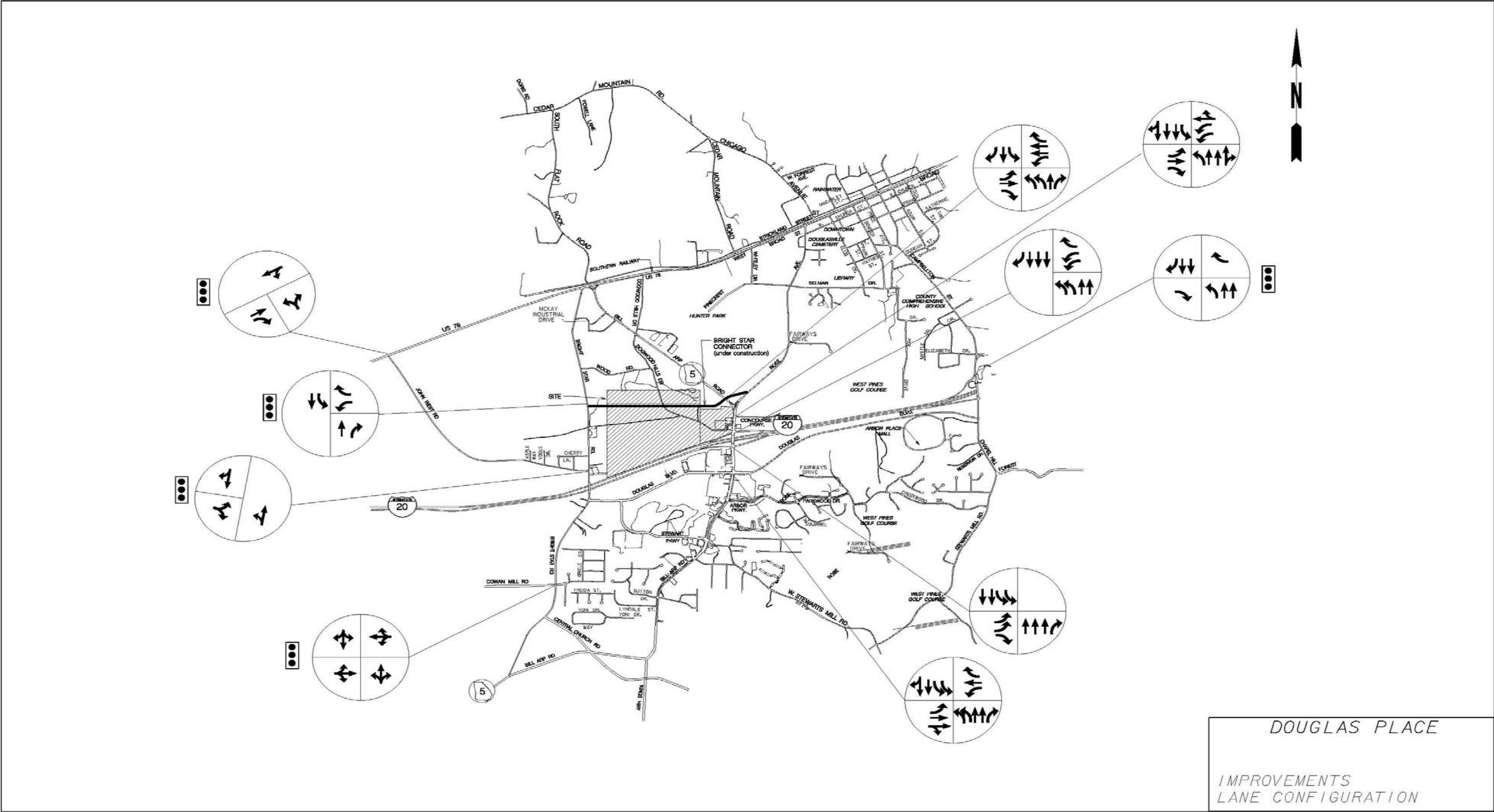


Figure 13 Improvements

7. IDENTIFICATION OF PROGRAMMED PROJECTS

There are number of projects in the City of Douglasville and Douglas County in proximity to Douglas Place that are identified in the TIP, RTP, and Douglas County's Draft Comprehensive Transportation Plan (CTP). They are identified in the following table.

Table 13 Programmed and Planned Projects		
Atlanta Regional Transportation Plan		
Project No.	Location	Descriptions
AR-616	Bright Star Road	Park and Ride Facilities for express bus service in the vicinity of Bright Star Road
AR-H-201	I-20 between SR 6 and Bright Star Road	I-20 West addition of HOV lanes for both directions between SR6 (Thornton Road) to Bright Star Road.
DO-282A	Underpass at US 78 (Broad Street) and NS Rail Line	Metro Arterial Connector - Grade Separates SR 92 on new alignment from US 78 and the railroad
DO-282B	SR 92 (Fairburn Road) south of Hospital Drive to US 78 (broad Street)	Metro Arterial Connector- SR92 phase II the realignment and widening of six lanes.
DO-282C	US 78 (Broad Street) to SR 92 (Dallas Highway)	Metro Arterial Connector-SR92 Phase III realignment and widening of six lanes
Douglas County Comprehensive Transportation Plan		
Project No.	Location	Descriptions
NA	SR 5 (Bill Arp Road) at Bright Star Road	Intersection Improvements
NA	Hwy 5	Signal Timing Upgrades

It is anticipated that two of the projects will impact trips orientation to Douglas Place. The first is the managed lanes on I-20 which will include an HOV interchange at Bright Star Road. Consequently, vehicles with 2 or more people can exit at Bright Star Road and access Douglas Place from its western end and avoid the signalized intersections along Bill Arp Road (SR 5). This alternate routing from I-20, projected to carry the largest portion of the site generated trips, will contribute to mitigating impacts to operations at the intersections on Bill Arp Road (SR 5).

This HOV project is also a GDOT project under the designation "Project MSL-0003-00(165), Douglas County PI #0003165, HOV lanes on Interstate 20 from State Route 5 to State Route 6 And Project NHS-0001-00(760), Douglas, Cobb & Fulton Counties PI #0001760, HOV lanes on Interstate 20 from State Route 6 to US 280/H.E. Holmes Road". As part of the project, the Bill Arp Road (SR 5) interchange is planned to be improved with the bridge widened to provide additional through and turn lanes and the approaches on Bill Arp Road (SR 5) to be widened as well.

The other project is the intersection improvement at Bright Star Road and Bill Arp Road (SR 5). For the residential area south of I-20 this intersection improvement will facilitate travel to the north via Bright Star Road, again accessing Douglas Place from its western end, and the surface street traffic can bypass Bill Arp Road (SR 5).

8. INGRESS/EGRESS ANALYSIS

The access to Douglas Place shown on the Site Plan, Figure 2, depicts a number of access points/driveways on the Bright Star Road Connector in addition to an access point on Bright Star Road and the access opposite Concourse Parkway on Bill Arp Road (SR 5). The access on Bright Star Road is intended for service and delivery vehicles and was not included in the Ingress/Egress Analysis. The Bill Arp Road (SR 5)/Concourse Parkway intersection is included with the Traffic Analysis of the network intersections. Consequently, this analysis focused on the driveways on Bright Star Road Connector.

For the land use activities on the north side of the two lanes in each direction median divided Bright Star Road Connector, there are four full access driveways. These driveways align with four full access driveways on the south side of Bright Star Road Connector. There are two other driveways on the south side that do not align with a driveway on the north side, essentially forming two T-intersections. Left turn storage bays are provided in the median at each driveway. The plan for Bright Star Road Connector calls for the installation of three interconnected traffic signals along this roadway.

To obtain data on the projected average daily traffic expected on Bright Star Road Connector, information was obtained from Douglas County and their CTP. The projection was less than 4,000 cars per day. Additional information was obtained from Cobb County on traffic on an existing roadway similar to Bright Star Road Connector. For Shiloh Road in Cobb County south of I-75, the average daily traffic is 17,400 cars per day. This number was adjusted to reflect the difference in size between the counties. The ratio used was projected population for the year 2030 (projections obtained from ARC) where Douglas County will have 30% of the population of Cobb County. This factor was applied to obtain an estimated 5,220 cars per day. Information for the Atlanta region indicates that the individual peak hour volumes represent approximately 6% to 8% of the total daily volumes. Consequently, the 8% factor was applied to the estimated daily trips and assigned as a part of the through volumes, eastbound and westbound, on the Bright Star Road Connector. Entering traffic was assigned in proportion to the size of the development north and south of Bright Star Road Connector and then uniformly distributed to each driveway. Also as part of the assignment, left turn exiting vehicles were dispersed to the signalized intersections where the northbound and southbound green phase would provide unconflicted access to Bright Star Road Connector.

The worksheets are in the Site Access Operations section of the Appendix and the results of the analysis for the morning, evening, and Saturday peak hours are shown in Table 14. From the results of the analyses, no operational issues are expected at the site driveways on the Bright Star Road Connector.

Table 14 2014 Site Access Operations with Douglas Place						
	A.M. Peak Hour		P.M. Peak Hour		Saturday Peak Hour	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
Bright Star Connector at Dwy 1						
Northbound Approach	B	11.6	B	11.6	B	10.3
Westbound Approach	B	14.3	B	12.6	A	8.8
Eastbound Approach	A	0.0	A	0.0	A	0.0
Bright Star Connector at Dwy 2	A	7.5	A	6.7	A	4.1
Bright Star Connector at Dwy 3						
Northbound Approach	B	10.6	B	10.2	A	9.6
Southbound Approach	B	10.8	B	10.6	A	9.9
Westbound Approach	B	11.4	B	10.4	A	8.4
Eastbound Approach	B	10.2	A	9.6	A	8.4
Bright Star Connector at Dwy 4	B	12.5	B	13.4	A	8.2
Bright Star Connector at Dwy 5	B	11.7	B	11.5	A	6.9
Bright Star Connector at Dwy 6						
Northbound Approach	B	11.5	B	11.0	A	9.5
Southbound Approach	A	9.9	A	9.8	A	9.2
Westbound Approach	A	9.3	A	8.9	A	8.1
Eastbound Approach	A	8.5	A	8.4	A	7.9

9. INTERNAL CIRCULATION ANALYSIS

For the larger portion of the Douglas Place mixed-use development which is south of Bright Star Road Connector, the internal street system is configured so that a driver can access any of the land use activities without having to leave the site. For the most part the internal streets run north-south and east-west making for excellent opportunities to control speeds with multi-way stop installations. These configurations enhance the ability of pedestrians to safely cross the internal streets.

The building layouts along the southern boundary of the development and adjacent to Bright Star Road Connector are configured linearly to facilitate the pedestrian access between the individual buildings. Pedestrians would cross internal streets periodically at stop controlled intersections thereby facilitating the on-foot connectivity between the individual buildings. With the north-south internal street, sidewalks will be constructed to provide convenient pathways between the series of buildings that are along the north and south boundary of the development. In addition, the buildings in the southeast quadrant of Douglas Place are oriented in a town center cluster allowing patrons to park once and have easy access on foot to a wide range of activities.

Douglas County through their CTP is promoting alternative modes of travel to the single occupancy vehicle. As the CTP evolves, one component will be to encourage bicycle travel for trip making. Initially the Douglas Place mixed-use development will be providing bicycle storage areas for those patrons accessing the site by bike. Then as facilities on the public road network are developed by the City of Douglasville and Douglas County, connectivity to these off-site networks will be provided to include appropriate signing and pavement markings.

10. QUEUE ANALYSIS

Per the Letter of Understanding, a queue analysis is to be performed at Concourse Parkway. As part of GDOT's Bill Arp Road (SR 5)/Rose Avenue improvement project, a median is to be constructed between the I-20 westbound ramps and Concourse Parkway. At the time the construction plans for this improvement project were developed, they did not account for Douglas Place and an access point opposite Concourse Parkway. Consequently, the northbound left turn storage length is shown as a minimal 150 feet.

Knowing that the site-generated traffic to Douglas Place that would use this turn lane would require more than the previously anticipated minimum, the left turn storage length was increased to 450 feet. The worksheets for the queue analysis are in the 20014 Build Operations with Improvements section of the Appendix. The results of the analysis indicate that the storage length exceeds the expected queue length for the fiftieth percentile for the morning and evening peak hours while 462 feet is the expected queue length during the Saturday peak hour.

11. COMPLIANCE WITH COMPREHENSIVE PLAN ANALYSIS

According to the City of Douglasville classifications, the Douglas Place mixed-use development is zoned GC, General Commercial. The property is bordered by similarly zoned GC parcels to the north and east. To the west, between Douglas Place and Bright Star Road, there a limited number of estate lots that are zoned residential. A DCD zoned parcel (apartments) is to the northeast.

According to ARC's Unified Growth Policy Map, the City of Douglasville Town Center area currently extends to Bill Arp Road (SR 5) and I-20. With the City's commercial zoning for this large parcel which does abut I-20, it is a logical extension to include the Town Center area to Douglas Place as legal land use rulings have consistently stated that roadways are not boundaries for land use classifications.

Douglas Place's location in proximity to a State Route interchange with an Interstate lends itself to have its generated trips not dispersed through neighborhoods impacting local traffic.

12. ARC'S AIR QUALITY BENCHMARK

The predominant land use for the Douglas Place mixed-use development is commercial/retail but also including hotels, reat and office space as well. One component for the reduction in vehicle miles traveled to be expected is from spaces set aside for carpool parking in preferred locations adjacent to these larger employment centers.

The development is planning for bicycle storage facilities and creating an on-site network through signing and striping to facilitate this mode of access. Also bicycle components of the Douglas County CTP are realized through implementation by the City of Douglasville and Douglas County, Douglas Place will provide connectivity to this off-site network.

GRTA is to construct a park and ride lot on Douglas Boulevard east of Bright Star Road. The existing express bus transit service out of Arbor Place Mall will be relocated to this site. With reverse commute peak operations, transit service will be in the vicinity for employees at Douglas Place. The distance from the park and ride lot via Douglas Boulevard and Bright Star Road is approximately ½ mile.

The reductions that may be applicable to this development include

Bike/ped networks providing connections to uses within the site (-2%)

If the project is located within ¼ mile of a bus stop (-1.5%): because of the extra distance do not realize the full 3% reduction

Transportation management association or parking management program (-3%)

With these strategies in place, a 6% reduction in VMTs is expected.

APPENDIX

TRAFFIC VOLUME DATA

Greater Traffic Company

File Name : 01
 Site Code : 00000001
 Start Date : 5/14/2009
 Page No : 1

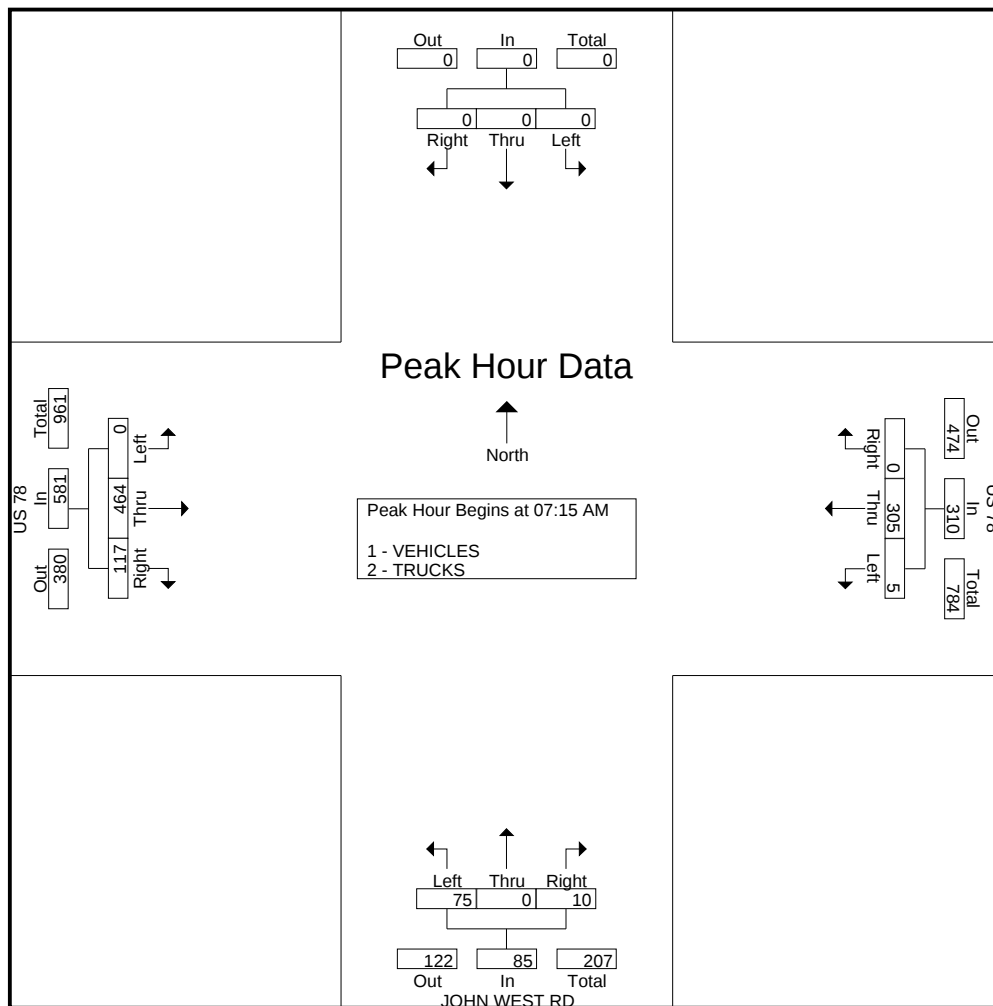
Groups Printed- VEHICLES - TRUCKS

Start Time	Southbound				US 78 Westbound				JOHN WEST RD Northbound				US 78 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
06:30 AM	0	0	0	0	0	57	0	57	7	0	3	10	0	72	9	81	148
06:45 AM	0	0	0	0	0	60	0	60	7	0	1	8	0	54	17	71	139
Total	0	0	0	0	0	117	0	117	14	0	4	18	0	126	26	152	287
07:00 AM	0	0	0	0	1	71	0	72	17	0	1	18	0	61	22	83	173
07:15 AM	0	0	0	0	1	73	0	74	18	0	3	21	0	87	29	116	211
07:30 AM	0	0	0	0	1	80	0	81	19	0	3	22	0	117	28	145	248
07:45 AM	0	0	0	0	1	92	0	93	21	0	2	23	0	137	35	172	288
Total	0	0	0	0	4	316	0	320	75	0	9	84	0	402	114	516	920
08:00 AM	0	0	0	0	2	60	0	62	17	0	2	19	0	123	25	148	229
08:15 AM	0	0	0	0	3	69	0	72	15	0	3	18	0	99	17	116	206
*** BREAK ***																	
Total	0	0	0	0	5	129	0	134	32	0	5	37	0	222	42	264	435
*** BREAK ***																	
04:30 PM	0	0	0	0	2	150	0	152	40	0	2	42	0	79	41	120	314
04:45 PM	0	0	0	0	0	153	0	153	37	0	6	43	0	95	36	131	327
Total	0	0	0	0	2	303	0	305	77	0	8	85	0	174	77	251	641
05:00 PM	0	0	0	0	2	171	0	173	61	0	2	63	0	61	26	87	323
05:15 PM	0	0	0	0	1	168	0	169	53	0	5	58	0	73	33	106	333
05:30 PM	0	0	0	0	3	159	0	162	44	0	9	53	0	100	22	122	337
05:45 PM	0	0	0	0	0	147	0	147	49	0	6	55	0	66	35	101	303
Total	0	0	0	0	6	645	0	651	207	0	22	229	0	300	116	416	1296
06:00 PM	0	0	0	0	3	133	0	136	47	0	2	49	0	83	27	110	295
06:15 PM	0	0	0	0	2	146	0	148	52	0	1	53	0	69	19	88	289
Grand Total	0	0	0	0	22	1789	0	1811	504	0	51	555	0	1376	421	1797	4163
Apprch %	0	0	0		1.2	98.8	0		90.8	0	9.2		0	76.6	23.4		
Total %	0	0	0	0	0.5	43	0	43.5	12.1	0	1.2	13.3	0	33.1	10.1	43.2	
1 - VEHICLES	0	0	0	0	22	1789	0	1811	504	0	51	555	0	1375	421	1796	4162
% 1 - VEHICLES	0	0	0	0	100	100	0	100	100	0	100	100	0	99.9	100	99.9	100
2 - TRUCKS	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% 2 - TRUCKS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0

Greater Traffic Company

File Name : 01
 Site Code : 00000001
 Start Date : 5/14/2009
 Page No : 2

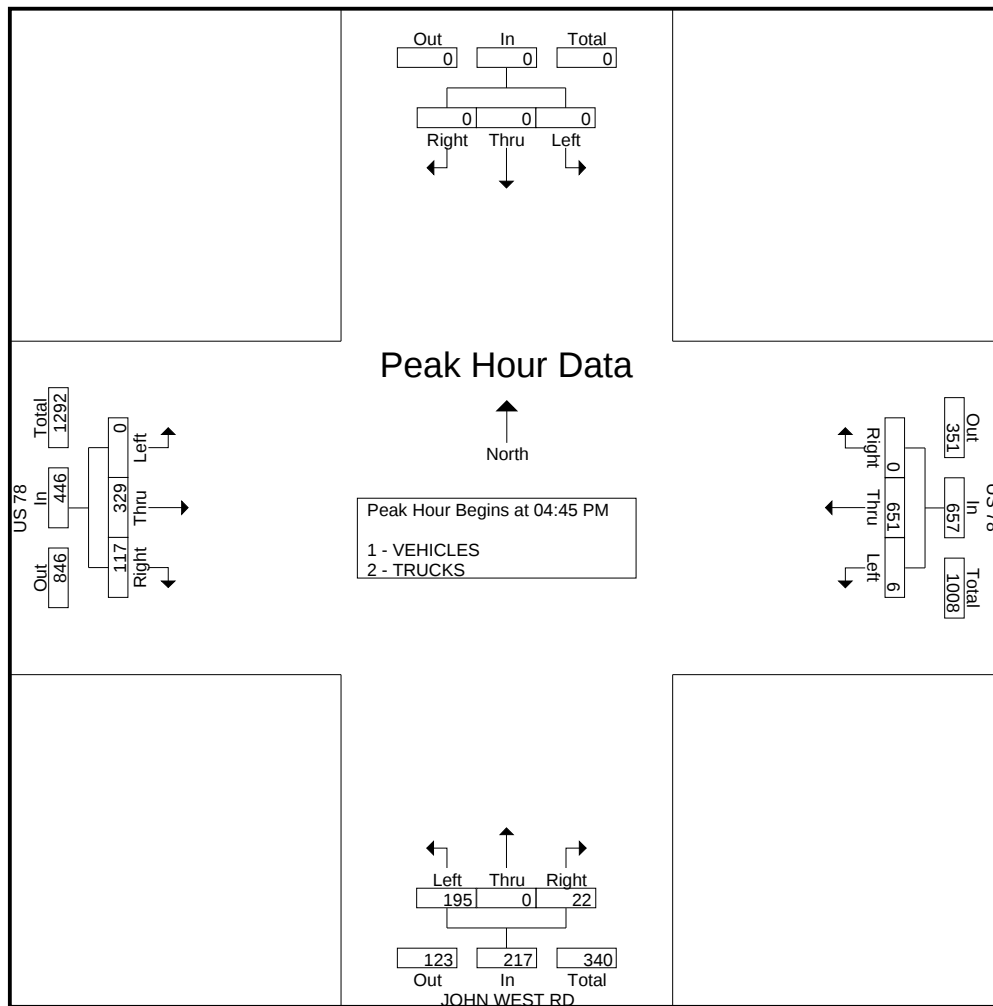
	Southbound				US 78 Westbound				JOHN WEST RD Northbound				US 78 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	1	73	0	74	18	0	3	21	0	87	29	116	211
07:30 AM	0	0	0	0	1	80	0	81	19	0	3	22	0	117	28	145	248
07:45 AM	0	0	0	0	1	92	0	93	21	0	2	23	0	137	35	172	288
08:00 AM	0	0	0	0	2	60	0	62	17	0	2	19	0	123	25	148	229
Total Volume	0	0	0	0	5	305	0	310	75	0	10	85	0	464	117	581	976
% App. Total	0	0	0		1.6	98.4	0		88.2	0	11.8		0	79.9	20.1		
PHF	.000	.000	.000	.000	.625	.829	.000	.833	.893	.000	.833	.924	.000	.847	.836	.844	.847



Greater Traffic Company

File Name : 01
 Site Code : 00000001
 Start Date : 5/14/2009
 Page No : 3

	Southbound				US 78 Westbound				JOHN WEST RD Northbound				US 78 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	153	0	153	37	0	6	43	0	95	36	131	327
05:00 PM	0	0	0	0	2	171	0	173	61	0	2	63	0	61	26	87	323
05:15 PM	0	0	0	0	1	168	0	169	53	0	5	58	0	73	33	106	333
05:30 PM	0	0	0	0	3	159	0	162	44	0	9	53	0	100	22	122	337
Total Volume	0	0	0	0	6	651	0	657	195	0	22	217	0	329	117	446	1320
% App. Total	0	0	0		0.9	99.1	0		89.9	0	10.1		0	73.8	26.2		
PHF	.000	.000	.000	.000	.500	.952	.000	.949	.799	.000	.611	.861	.000	.823	.813	.851	.979



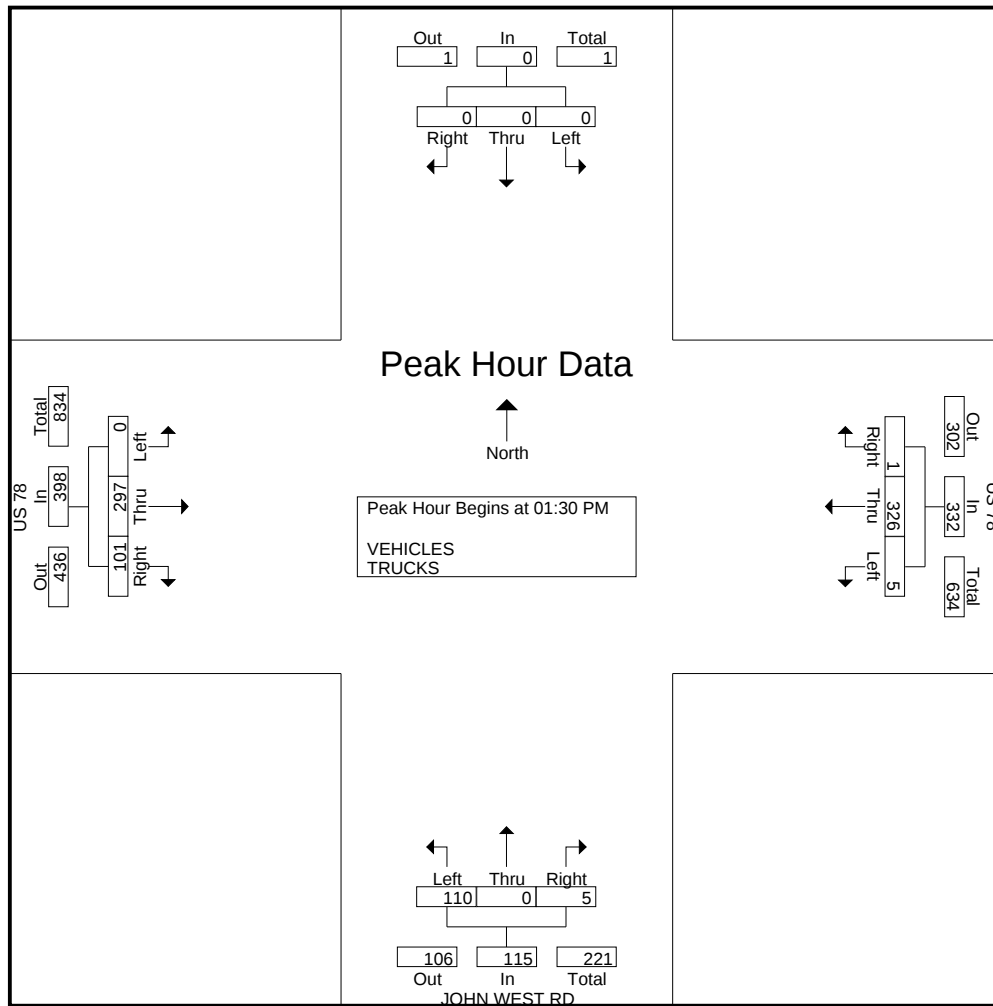
File Name : 01SAT
Site Code : 00000001
Start Date : 5/16/2009
Page No : 1

[illegible]

Greater Traffic Company

File Name : 01SAT
 Site Code : 00000001
 Start Date : 5/16/2009
 Page No : 2

	Southbound				US 78 Westbound				JOHN WEST RD Northbound				US 78 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:30 PM																	
01:30 PM	0	0	0	0	3	78	0	81	26	0	1	27	0	74	25	99	207
01:45 PM	0	0	0	0	1	82	0	83	22	0	2	24	0	65	24	89	196
02:00 PM	0	0	0	0	1	77	0	78	31	0	1	32	0	71	27	98	208
02:15 PM	0	0	0	0	0	89	1	90	31	0	1	32	0	87	25	112	234
Total Volume	0	0	0	0	5	326	1	332	110	0	5	115	0	297	101	398	845
% App. Total	0	0	0		1.5	98.2	0.3		95.7	0	4.3		0	74.6	25.4		
PHF	.000	.000	.000	.000	.417	.916	.250	.922	.887	.000	.625	.898	.000	.853	.935	.888	.903



Greater Traffic Company

File Name : 02
 Site Code : 00000002
 Start Date : 5/13/2009
 Page No : 1

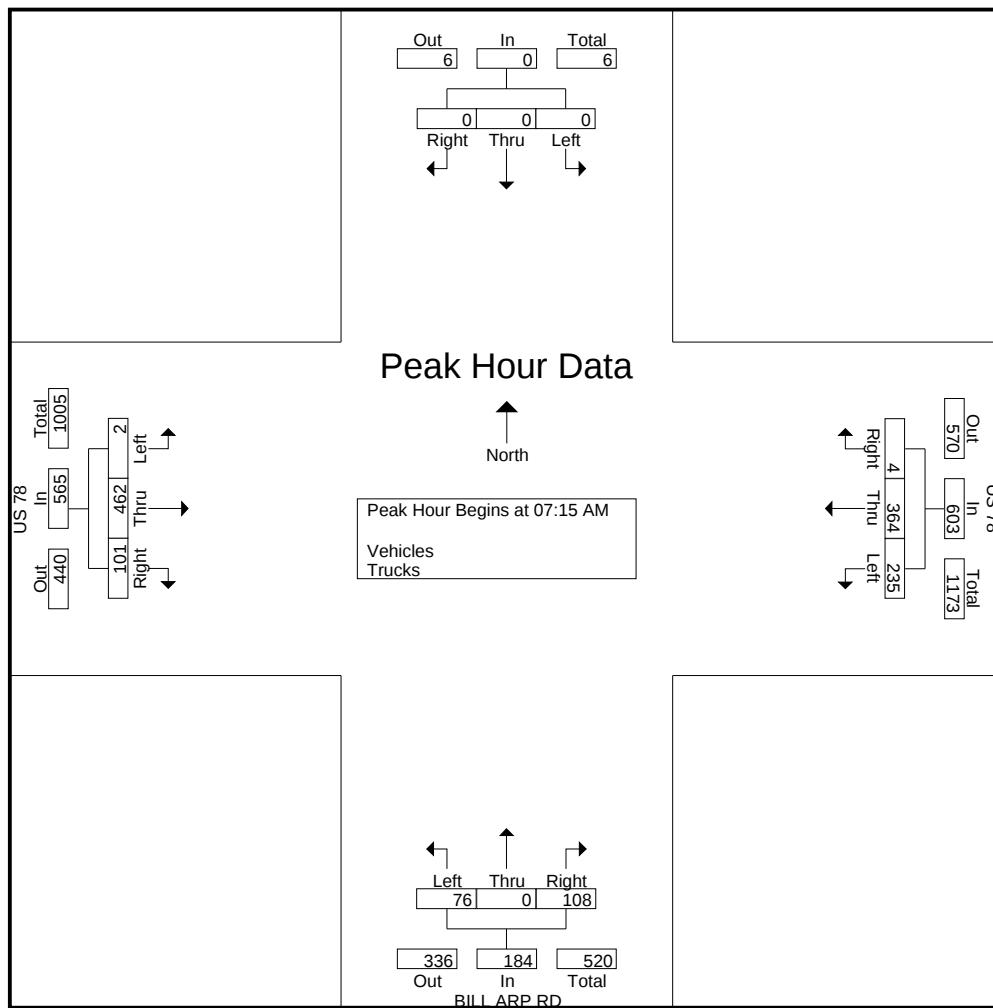
Groups Printed- Vehicles - Trucks

	Southbound				US 78 Westbound				BILL ARP RD Northbound				US 78 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	0	0	0	0	75	59	0	134	6	0	9	15	0	71	19	90	239
06:45 AM	0	0	0	0	83	68	0	151	14	0	14	28	0	59	17	76	255
Total	0	0	0	0	158	127	0	285	20	0	23	43	0	130	36	166	494
07:00 AM	0	0	0	0	78	80	1	159	12	0	15	27	0	56	14	70	256
07:15 AM	0	0	0	0	79	85	2	166	19	0	28	47	1	92	14	107	320
07:30 AM	0	0	0	0	58	96	1	155	24	0	23	47	0	120	31	151	353
07:45 AM	0	0	0	0	50	111	0	161	20	0	31	51	1	126	28	155	367
Total	0	0	0	0	265	372	4	641	75	0	97	172	2	394	87	483	1296
08:00 AM	0	0	0	0	48	72	1	121	13	0	26	39	0	124	28	152	312
08:15 AM	0	0	0	0	78	79	0	157	9	0	23	32	0	109	20	129	318
*** BREAK ***																	
Total	0	0	0	0	126	151	1	278	22	0	49	71	0	233	48	281	630
*** BREAK ***																	
04:30 PM	0	0	0	0	45	130	2	177	58	0	77	135	1	89	17	107	419
04:45 PM	0	0	0	0	32	120	2	154	44	0	61	105	1	101	17	119	378
Total	0	0	0	0	77	250	4	331	102	0	138	240	2	190	34	226	797
05:00 PM	0	0	0	0	30	152	1	183	55	0	93	148	0	54	35	89	420
05:15 PM	0	0	0	0	31	148	1	180	39	0	64	103	0	69	30	99	382
05:30 PM	0	0	0	0	45	135	0	180	41	0	77	118	0	100	22	122	420
05:45 PM	0	0	0	0	40	129	0	169	31	0	74	105	0	69	18	87	361
Total	0	0	0	0	146	564	2	712	166	0	308	474	0	292	105	397	1583
06:00 PM	0	0	0	0	39	121	0	160	25	0	86	111	0	85	20	105	376
06:15 PM	0	0	0	0	29	136	0	165	31	0	89	120	0	66	12	78	363
Grand Total	0	0	0	0	840	1721	11	2572	441	0	790	1231	4	1390	342	1736	5539
Apprch %	0	0	0		32.7	66.9	0.4		35.8	0	64.2		0.2	80.1	19.7		
Total %	0	0	0	0	15.2	31.1	0.2	46.4	8	0	14.3	22.2	0.1	25.1	6.2	31.3	
Vehicles	0	0	0	0	840	1702	0	2542	430	0	779	1209	0	1374	342	1716	5467
% Vehicles	0	0	0	0	100	98.9	0	98.8	97.5	0	98.6	98.2	0	98.8	100	98.8	98.7
Trucks	0	0	0	0	0	19	11	30	11	0	11	22	4	16	0	20	72
% Trucks	0	0	0	0	0	1.1	100	1.2	2.5	0	1.4	1.8	100	1.2	0	1.2	1.3

Greater Traffic Company

File Name : 02
 Site Code : 00000002
 Start Date : 5/13/2009
 Page No : 2

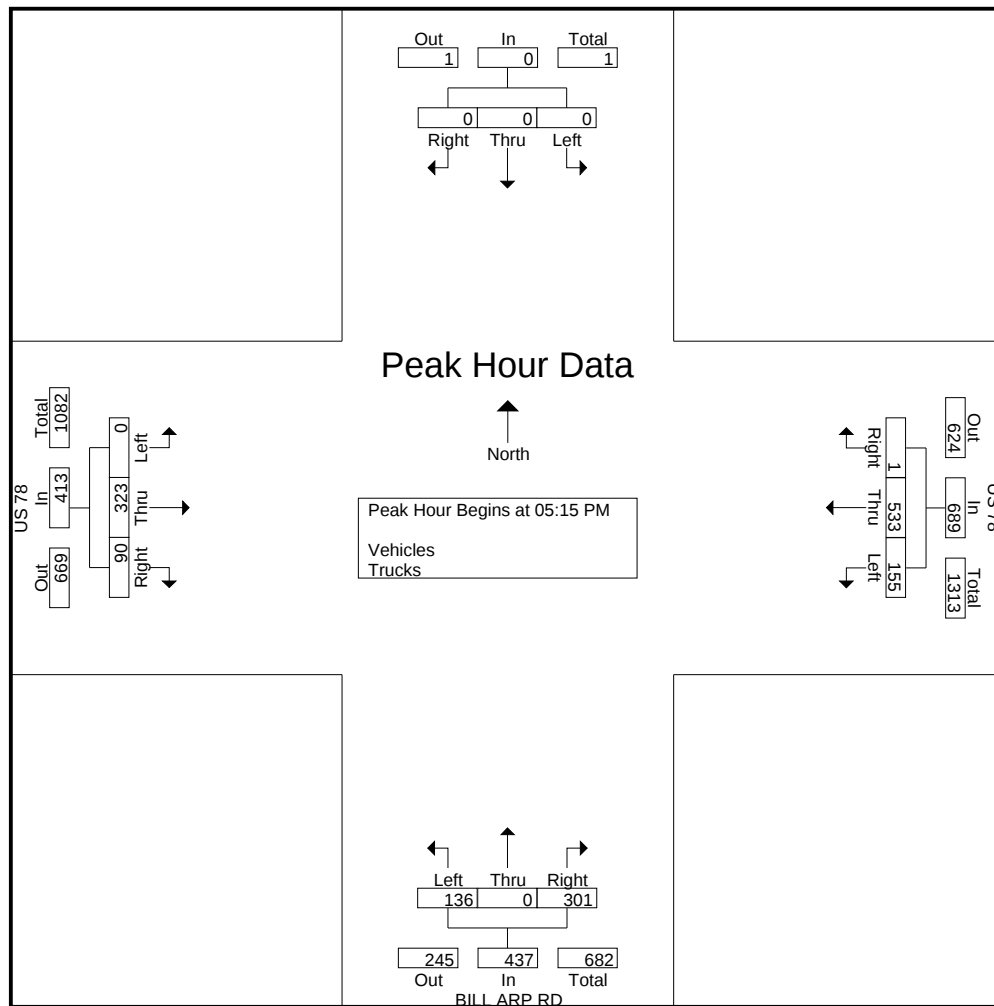
	Southbound				US 78 Westbound				BILL ARP RD Northbound				US 78 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	79	85	2	166	19	0	28	47	1	92	14	107	320
07:30 AM	0	0	0	0	58	96	1	155	24	0	23	47	0	120	31	151	353
07:45 AM	0	0	0	0	50	111	0	161	20	0	31	51	1	126	28	155	367
08:00 AM	0	0	0	0	48	72	1	121	13	0	26	39	0	124	28	152	312
Total Volume	0	0	0	0	235	364	4	603	76	0	108	184	2	462	101	565	1352
% App. Total	0	0	0	0	39	60.4	0.7		41.3	0	58.7		0.4	81.8	17.9		
PHF	.000	.000	.000	.000	.744	.820	.500	.908	.792	.000	.871	.902	.500	.917	.815	.911	.921



Greater Traffic Company

File Name : 02
 Site Code : 00000002
 Start Date : 5/13/2009
 Page No : 3

	Southbound				US 78 Westbound				BILL ARP RD Northbound				US 78 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:15 PM to 06:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	0	0	0	0	31	148	1	180	39	0	64	103	0	69	30	99	382
05:30 PM	0	0	0	0	45	135	0	180	41	0	77	118	0	100	22	122	420
05:45 PM	0	0	0	0	40	129	0	169	31	0	74	105	0	69	18	87	361
06:00 PM	0	0	0	0	39	121	0	160	25	0	86	111	0	85	20	105	376
Total Volume	0	0	0	0	155	533	1	689	136	0	301	437	0	323	90	413	1539
% App. Total	0	0	0		22.5	77.4	0.1		31.1	0	68.9		0	78.2	21.8		
PHF	.000	.000	.000	.000	.861	.900	.250	.957	.829	.000	.875	.926	.000	.808	.750	.846	.916



Greater Traffic Company

File Name : 02SAT
 Site Code : 00000002
 Start Date : 5/16/2009
 Page No : 1

Groups Printed- VEHICLES - TRUCKS

	BILL ARP Southbound				US 78 Westbound				BILL ARP Northbound				US 78 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	0	0	0	0	45	82	0	127	34	0	34	68	0	87	10	97	292
01:15 PM	0	0	0	0	55	69	0	124	14	0	41	55	0	86	7	93	272
01:30 PM	0	0	0	0	55	87	0	142	11	0	33	44	0	97	7	104	290
01:45 PM	0	0	0	0	41	95	0	136	30	0	49	79	0	78	12	90	305
Total	0	0	0	0	196	333	0	529	89	0	157	246	0	348	36	384	1159
02:00 PM	0	0	0	0	42	76	0	118	16	0	53	69	0	62	21	83	270
02:15 PM	0	0	0	0	39	91	0	130	26	0	43	69	0	106	14	120	319
02:30 PM	0	0	0	0	46	111	0	157	20	0	53	73	0	65	14	79	309
02:45 PM	0	0	0	0	34	92	0	126	17	0	50	67	0	53	11	64	257
Total	0	0	0	0	161	370	0	531	79	0	199	278	0	286	60	346	1155
Grand Total	0	0	0	0	357	703	0	1060	168	0	356	524	0	634	96	730	2314
Apprch %	0	0	0		33.7	66.3	0		32.1	0	67.9		0	86.8	13.2		
Total %	0	0	0	0	15.4	30.4	0	45.8	7.3	0	15.4	22.6	0	27.4	4.1	31.5	
VEHICLES	0	0	0	0	357	703	0	1060	165	0	355	520	0	634	95	729	2309
% VEHICLES	0	0	0	0	100	100	0	100	98.2	0	99.7	99.2	0	100	99	99.9	99.8
TRUCKS	0	0	0	0	0	0	0	0	3	0	1	4	0	0	1	1	5
% TRUCKS	0	0	0	0	0	0	0	0	1.8	0	0.3	0.8	0	0	1	0.1	0.2

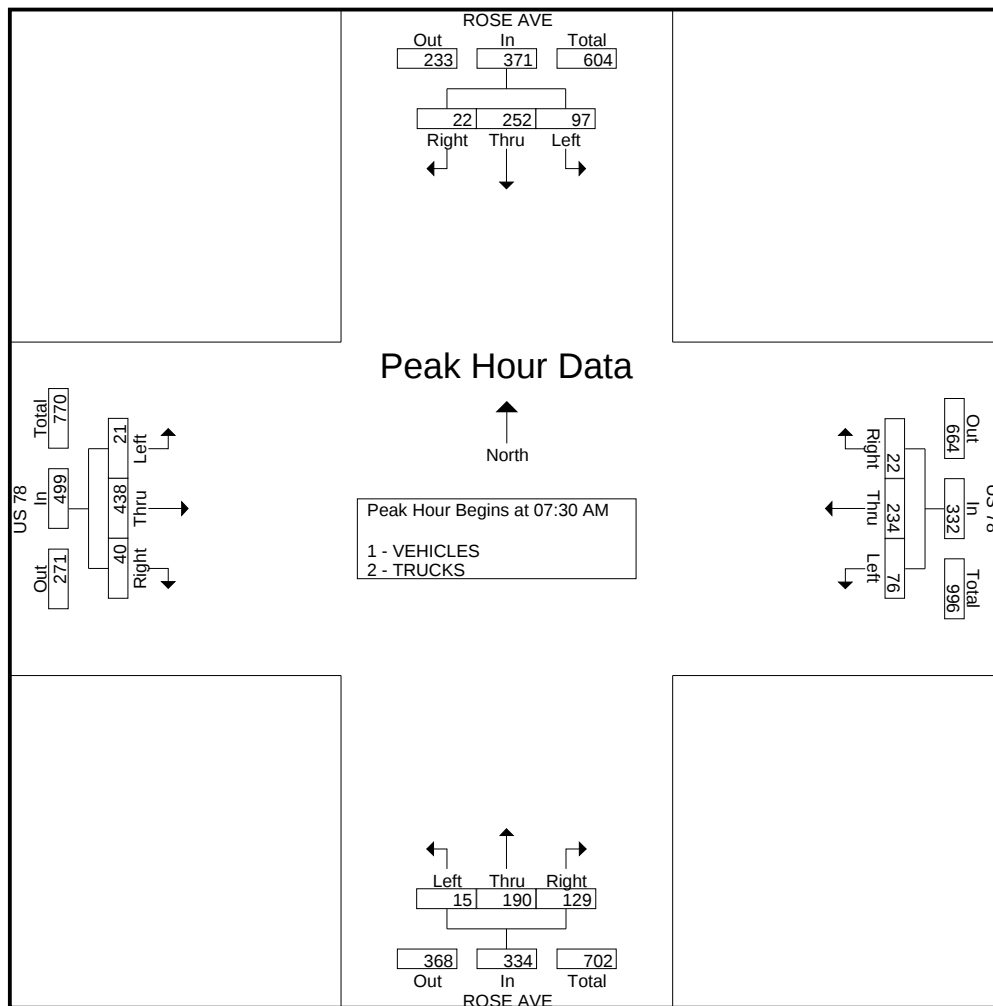
File Name : 03
Site Code : 00000003
Start Date : 5/14/2009
Page No : 1

	ROSE AVE Southbound				US 78 Westbound				ROSE AVE Northbound				US 78 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	27	32	6	65	10	34	0	44	2	14	26	42	3	74	7	84	235
06:45 AM	19	32	1	52	11	48	2	61	3	24	28	55	2	80	5	87	255
Total	46	64	7	117	21	82	2	105	5	38	54	97	5	154	12	171	490
07:00 AM	22	34	1	57	18	31	0	49	1	38	34	73	0	72	11	83	262
07:15 AM	25	42	4	71	15	58	2	75	4	42	35	81	1	99	6	106	333
07:30 AM	28	61	5	94	21	56	6	83	2	50	31	83	4	111	8	123	383
07:45 AM	24	59	6	89	16	68	1	85	1	47	31	79	5	109	10	124	377
Total	99	196	16	311	70	213	9	292	8	177	131	316	10	391	35	436	1355
08:00 AM	22	63	4	89	20	44	6	70	4	49	35	88	6	96	14	116	363
08:15 AM	23	69	7	99	19	66	9	94	8	44	32	84	6	122	8	136	413
*** BREAK ***																	
Total	45	132	11	188	39	110	15	164	12	93	67	172	12	218	22	252	776
04:30 PM	10	36	12	58	21	86	11	118	15	51	24	90	5	84	7	96	362
04:45 PM	8	27	4	39	19	104	16	139	13	48	15	76	5	90	7	102	356
Total	18	63	16	97	40	190	27	257	28	99	39	166	10	174	14	198	718
05:00 PM	12	32	9	53	19	137	23	179	16	51	16	83	9	75	1	85	400
05:15 PM	7	29	11	47	16	116	20	152	13	57	27	97	3	78	2	83	379
05:30 PM	10	46	6	62	22	103	19	144	17	64	28	109	8	96	9	113	428
05:45 PM	10	35	6	51	21	95	16	132	17	71	25	113	4	85	9	98	394
Total	39	142	32	213	78	451	78	607	63	243	96	402	24	334	21	379	1601
06:00 PM	16	42	9	67	20	120	22	162	11	68	23	102	3	76	11	90	421
06:15 PM	19	49	7	75	36	93	18	147	12	62	29	103	7	69	7	83	408
Grand Total	282	688	98	1068	304	1259	171	1734	139	780	439	1358	71	1416	122	1609	5769
Apprch %	26.4	64.4	9.2		17.5	72.6	9.9		10.2	57.4	32.3		4.4	88	7.6		
Total %	4.9	11.9	1.7	18.5	5.3	21.8	3	30.1	2.4	13.5	7.6	23.5	1.2	24.5	2.1	27.9	
1 - VEHICLES	282	688	98	1068	304	1259	171	1734	139	780	439	1358					

Greater Traffic Company

File Name : 03
 Site Code : 00000003
 Start Date : 5/14/2009
 Page No : 2

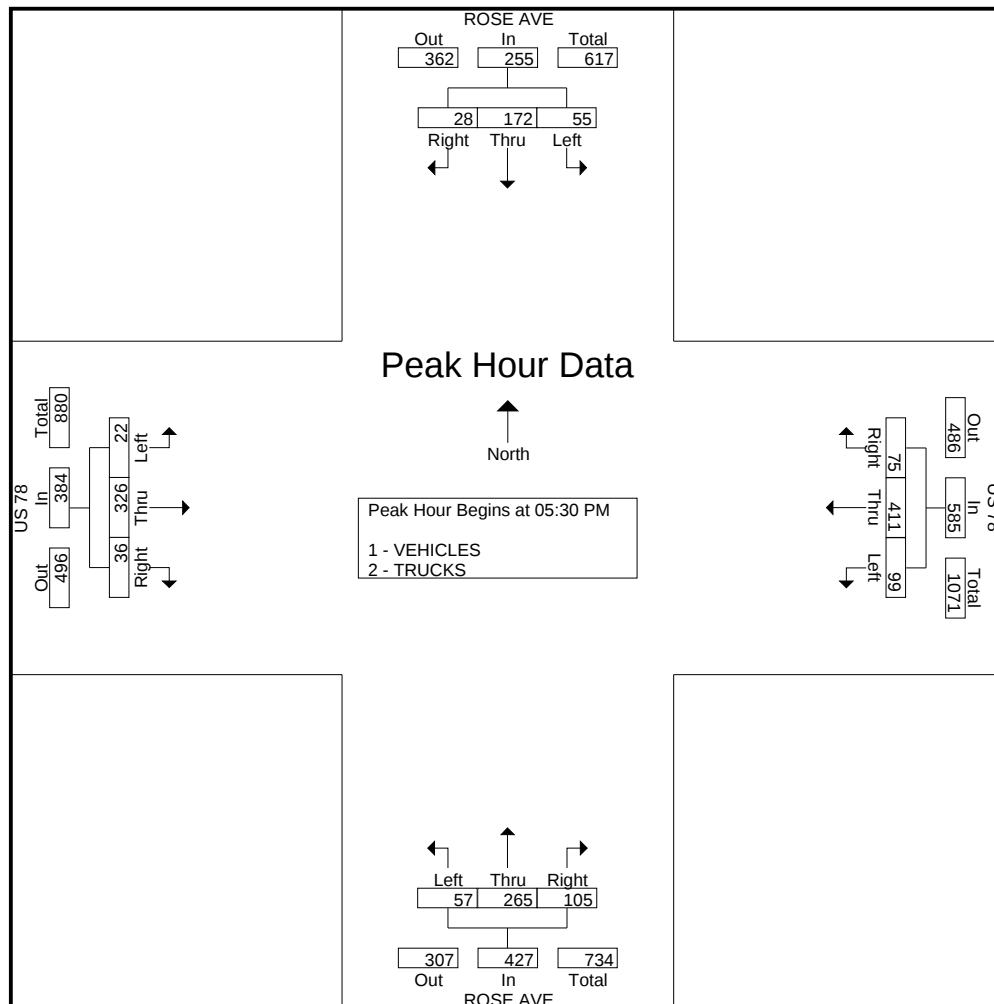
	ROSE AVE Southbound				US 78 Westbound				ROSE AVE Northbound				US 78 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	28	61	5	94	21	56	6	83	2	50	31	83	4	111	8	123	383
07:45 AM	24	59	6	89	16	68	1	85	1	47	31	79	5	109	10	124	377
08:00 AM	22	63	4	89	20	44	6	70	4	49	35	88	6	96	14	116	363
08:15 AM	23	69	7	99	19	66	9	94	8	44	32	84	6	122	8	136	413
Total Volume	97	252	22	371	76	234	22	332	15	190	129	334	21	438	40	499	1536
% App. Total	26.1	67.9	5.9		22.9	70.5	6.6		4.5	56.9	38.6		4.2	87.8	8		
PHF	.866	.913	.786	.937	.905	.860	.611	.883	.469	.950	.921	.949	.875	.898	.714	.917	.930



Greater Traffic Company

File Name : 03
 Site Code : 00000003
 Start Date : 5/14/2009
 Page No : 3

	ROSE AVE Southbound				US 78 Westbound				ROSE AVE Northbound				US 78 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:30 PM																	
05:30 PM	10	46	6	62	22	103	19	144	17	64	28	109	8	96	9	113	428
05:45 PM	10	35	6	51	21	95	16	132	17	71	25	113	4	85	9	98	394
06:00 PM	16	42	9	67	20	120	22	162	11	68	23	102	3	76	11	90	421
06:15 PM	19	49	7	75	36	93	18	147	12	62	29	103	7	69	7	83	408
Total Volume	55	172	28	255	99	411	75	585	57	265	105	427	22	326	36	384	1651
% App. Total	21.6	67.5	11		16.9	70.3	12.8		13.3	62.1	24.6		5.7	84.9	9.4		
PHF	.724	.878	.778	.850	.688	.856	.852	.903	.838	.933	.905	.945	.688	.849	.818	.850	.964



Greater Traffic Company

File Name : 03SAT
 Site Code : 00000003
 Start Date : 5/16/2009
 Page No : 1

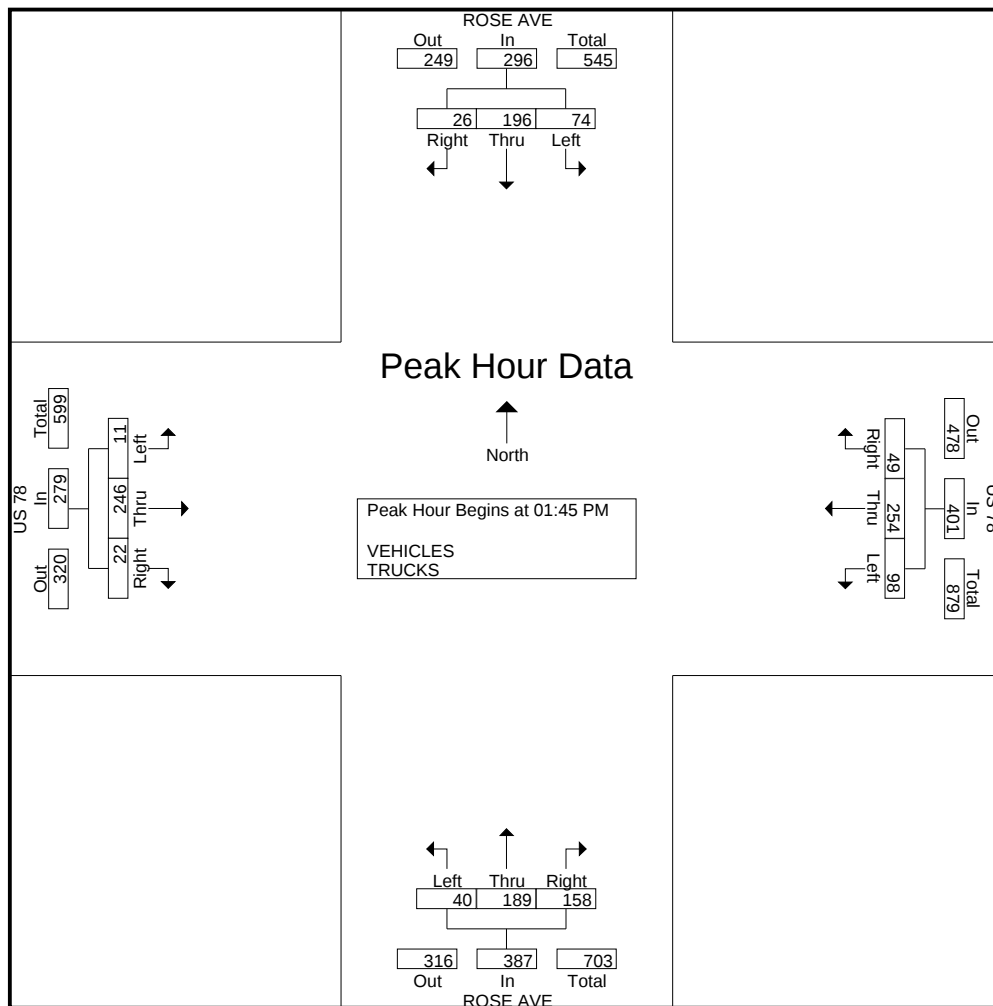
Groups Printed- VEHICLES - TRUCKS

	ROSE AVE Southbound				US 78 Westbound				ROSE AVE Northbound				US 78 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
01:00 PM	15	43	8	66	32	54	8	94	5	49	47	101	4	69	2	75	336
01:15 PM	17	44	7	68	23	50	11	84	7	42	28	77	8	60	5	73	302
01:30 PM	23	45	6	74	33	60	14	107	8	44	39	91	3	63	5	71	343
01:45 PM	20	56	0	76	23	55	10	88	16	51	36	103	4	68	4	76	343
Total	75	188	21	284	111	219	43	373	36	186	150	372	19	260	16	295	1324
02:00 PM	13	40	10	63	28	56	7	91	9	50	41	100	4	70	3	77	331
02:15 PM	17	50	4	71	24	73	14	111	9	32	46	87	2	61	8	71	340
02:30 PM	24	50	12	86	23	70	18	111	6	56	35	97	1	47	7	55	349
02:45 PM	13	53	5	71	31	69	8	108	11	41	36	88	8	44	8	60	327
Total	67	193	31	291	106	268	47	421	35	179	158	372	15	222	26	263	1347
Grand Total	142	381	52	575	217	487	90	794	71	365	308	744	34	482	42	558	2671
Apprch %	24.7	66.3	9		27.3	61.3	11.3		9.5	49.1	41.4		6.1	86.4	7.5		
Total %	5.3	14.3	1.9	21.5	8.1	18.2	3.4	29.7	2.7	13.7	11.5	27.9	1.3	18	1.6	20.9	
VEHICLES	142	381	52	575	217	487	90	794	71	365	307	743	34	482	42	558	2670
% VEHICLES	100	100	100	100	100	100	100	100	100	100	99.7	99.9	100	100	100	100	100
TRUCKS	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% TRUCKS	0	0	0	0	0	0	0	0	0	0	0.3	0.1	0	0	0	0	0

Greater Traffic Company

File Name : 03SAT
 Site Code : 00000003
 Start Date : 5/16/2009
 Page No : 2

	ROSE AVE Southbound				US 78 Westbound				ROSE AVE Northbound				US 78 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:45 PM																	
01:45 PM	20	56	0	76	23	55	10	88	16	51	36	103	4	68	4	76	343
02:00 PM	13	40	10	63	28	56	7	91	9	50	41	100	4	70	3	77	331
02:15 PM	17	50	4	71	24	73	14	111	9	32	46	87	2	61	8	71	340
02:30 PM	24	50	12	86	23	70	18	111	6	56	35	97	1	47	7	55	349
Total Volume	74	196	26	296	98	254	49	401	40	189	158	387	11	246	22	279	1363
% App. Total	25	66.2	8.8		24.4	63.3	12.2		10.3	48.8	40.8		3.9	88.2	7.9		
PHF	.771	.875	.542	.860	.875	.870	.681	.903	.625	.844	.859	.939	.688	.879	.688	.906	.976



Greater Traffic Company

File Name : 04
 Site Code : 00000004
 Start Date : 5/12/2009
 Page No : 1

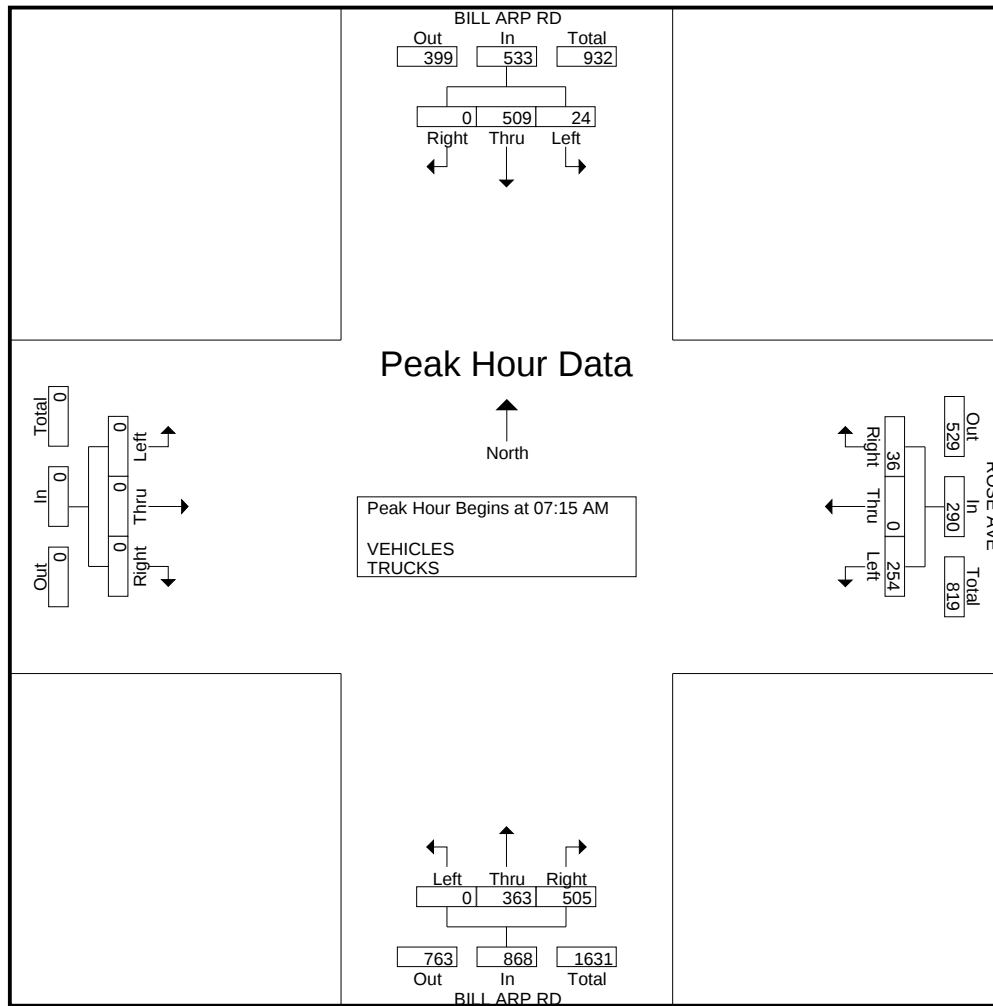
Groups Printed- VEHICLES - TRUCKS

	BILL ARP RD Southbound				ROSE AVE Westbound				BILL ARP RD Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	7	134	0	141	34	0	5	39	0	46	43	89	0	0	0	0	269
06:45 AM	5	128	0	133	36	0	2	38	0	50	62	112	0	0	0	0	283
Total	12	262	0	274	70	0	7	77	0	96	105	201	0	0	0	0	552
07:00 AM	3	121	0	124	50	0	4	54	0	71	46	117	0	0	0	0	295
07:15 AM	3	128	0	131	59	0	12	71	0	85	89	174	0	0	0	0	376
07:30 AM	11	146	0	157	63	0	12	75	0	99	117	216	0	0	0	0	448
07:45 AM	7	123	0	130	72	0	8	80	0	105	145	250	0	0	0	0	460
Total	24	518	0	542	244	0	36	280	0	360	397	757	0	0	0	0	1579
08:00 AM	3	112	0	115	60	0	4	64	0	74	154	228	0	0	0	0	407
08:15 AM	6	95	0	101	48	0	4	52	0	68	137	205	0	0	0	0	358
*** BREAK ***																	
Total	9	207	0	216	108	0	8	116	0	142	291	433	0	0	0	0	765
*** BREAK ***																	
04:30 PM	19	109	0	128	88	0	19	107	0	124	108	232	0	0	0	0	467
04:45 PM	20	92	0	112	103	0	21	124	0	127	130	257	0	0	0	0	493
Total	39	201	0	240	191	0	40	231	0	251	238	489	0	0	0	0	960
05:00 PM	17	85	0	102	93	0	18	111	0	155	105	260	0	0	0	0	473
05:15 PM	17	86	0	103	88	0	27	115	0	162	124	286	0	0	0	0	504
05:30 PM	23	82	0	105	69	0	18	87	0	194	128	322	0	0	0	0	514
05:45 PM	15	87	0	102	89	0	16	105	0	175	114	289	0	0	0	0	496
Total	72	340	0	412	339	0	79	418	0	686	471	1157	0	0	0	0	1987
06:00 PM	24	76	0	100	88	0	22	110	0	180	127	307	0	0	0	0	517
06:15 PM	14	75	0	89	90	0	19	109	0	144	104	248	0	0	0	0	446
Grand Total	194	1679	0	1873	1130	0	211	1341	0	1859	1733	3592	0	0	0	0	6806
Apprch %	10.4	89.6	0		84.3	0	15.7		0	51.8	48.2		0	0	0		
Total %	2.9	24.7	0	27.5	16.6	0	3.1	19.7	0	27.3	25.5	52.8	0	0	0	0	
VEHICLES	194	1671	0	1865	1130	0	210	1340	0	1845	1733	3578	0	0	0	0	6783
% VEHICLES	100	99.5	0	99.6	100	0	99.5	99.9	0	99.2	100	99.6	0	0	0	0	99.7
TRUCKS	0	8	0	8	0	0	1	1	0	14	0	14	0	0	0	0	23
% TRUCKS	0	0.5	0	0.4	0	0	0.5	0.1	0	0.8	0	0.4	0	0	0	0	0.3

Greater Traffic Company

File Name : 04
 Site Code : 00000004
 Start Date : 5/12/2009
 Page No : 2

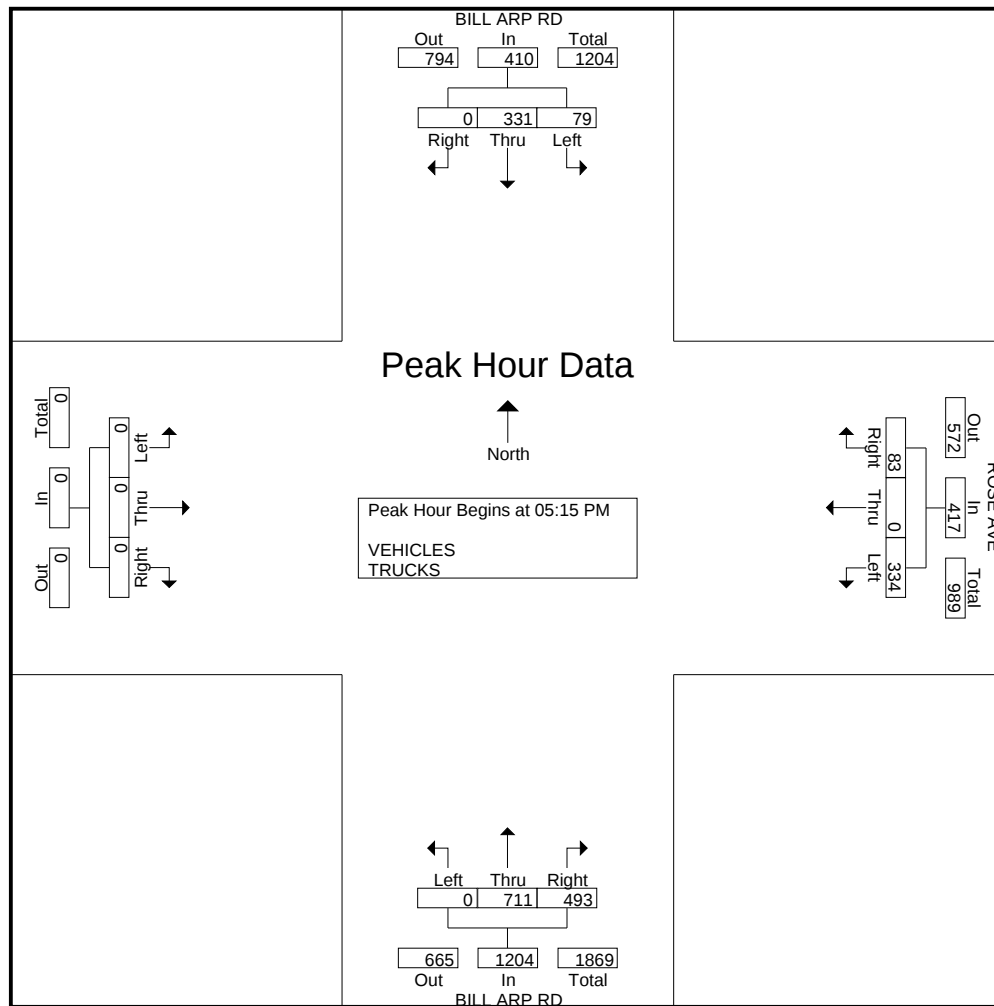
	BILL ARP RD Southbound				ROSE AVE Westbound				BILL ARP RD Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	3	128	0	131	59	0	12	71	0	85	89	174	0	0	0	0	376
07:30 AM	11	146	0	157	63	0	12	75	0	99	117	216	0	0	0	0	448
07:45 AM	7	123	0	130	72	0	8	80	0	105	145	250	0	0	0	0	460
08:00 AM	3	112	0	115	60	0	4	64	0	74	154	228	0	0	0	0	407
Total Volume	24	509	0	533	254	0	36	290	0	363	505	868	0	0	0	0	1691
% App. Total	4.5	95.5	0		87.6	0	12.4		0	41.8	58.2		0	0	0		
PHF	.545	.872	.000	.849	.882	.000	.750	.906	.000	.864	.820	.868	.000	.000	.000	.000	.919



Greater Traffic Company

File Name : 04
 Site Code : 00000004
 Start Date : 5/12/2009
 Page No : 3

	BILL ARP RD Southbound				ROSE AVE Westbound				BILL ARP RD Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	17	86	0	103	88	0	27	115	0	162	124	286	0	0	0	0	504
05:30 PM	23	82	0	105	69	0	18	87	0	194	128	322	0	0	0	0	514
05:45 PM	15	87	0	102	89	0	16	105	0	175	114	289	0	0	0	0	496
06:00 PM	24	76	0	100	88	0	22	110	0	180	127	307	0	0	0	0	517
Total Volume	79	331	0	410	334	0	83	417	0	711	493	1204	0	0	0	0	2031
% App. Total	19.3	80.7	0		80.1	0	19.9		0	59.1	40.9		0	0	0		
PHF	.823	.951	.000	.976	.938	.000	.769	.907	.000	.916	.963	.935	.000	.000	.000	.000	.982



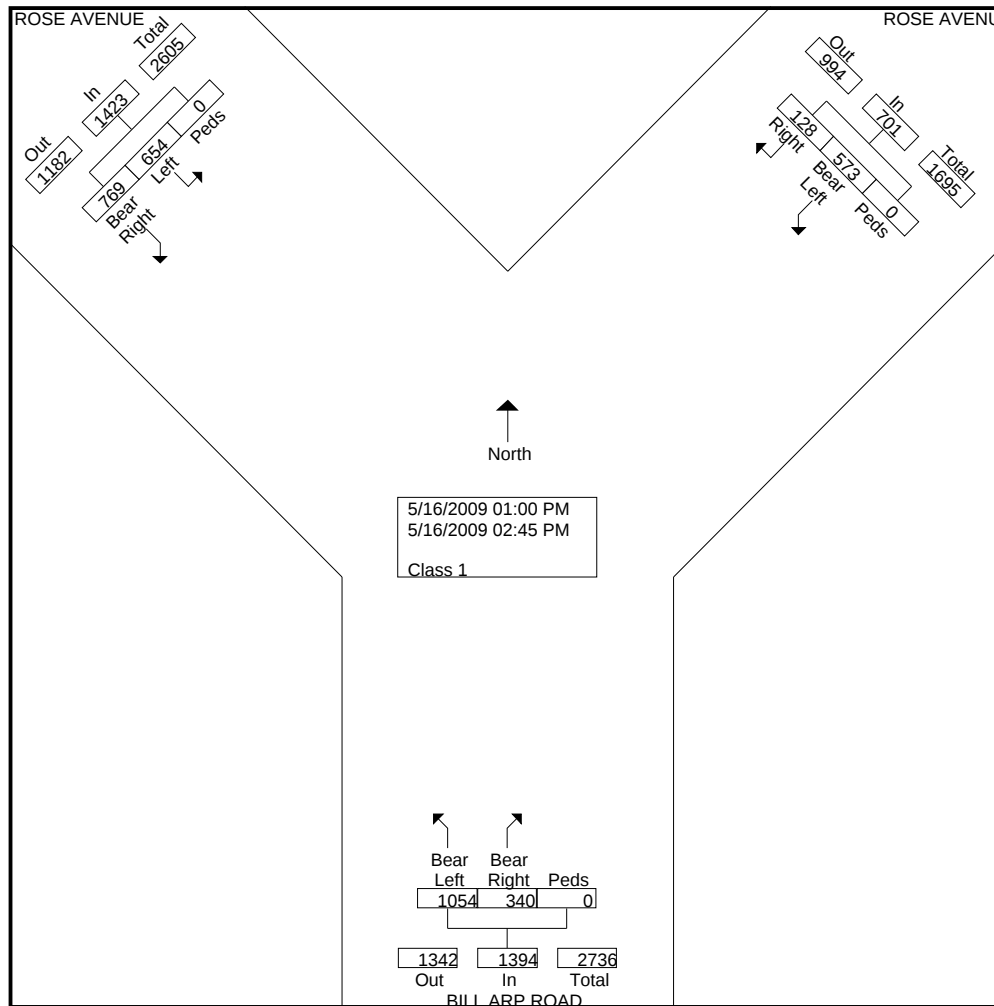
All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : BillArp@RoseAveSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 1

Groups Printed- Class 1

Start Time	ROSE AVENUE Southeastbound				ROSE AVENUE Southwestbound				BILL ARP ROAD Northbound				Int. Total
	Bear Right	Left	Peds	App. Total	Right	Bear Left	Peds	App. Total	Bear Right	Bear Left	Peds	App. Total	
01:00 PM	102	92	0	194	16	73	0	89	52	132	0	184	467
01:15 PM	105	63	0	168	18	61	0	79	36	134	0	170	417
01:30 PM	96	80	0	176	14	78	0	92	40	120	0	160	428
01:45 PM	80	79	0	159	10	79	0	89	32	142	0	174	422
Total	383	314	0	697	58	291	0	349	160	528	0	688	1734
02:00 PM	110	96	0	206	13	77	0	90	46	140	0	186	482
02:15 PM	82	82	0	164	27	65	0	92	39	132	0	171	427
02:30 PM	101	79	0	180	14	85	0	99	54	114	0	168	447
02:45 PM	93	83	0	176	16	55	0	71	41	140	0	181	428
Total	386	340	0	726	70	282	0	352	180	526	0	706	1784
Grand Total	769	654	0	1423	128	573	0	701	340	1054	0	1394	3518
Apprch %	54	46	0		18.3	81.7	0		24.4	75.6	0		
Total %	21.9	18.6	0	40.4	3.6	16.3	0	19.9	9.7	30	0	39.6	



All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : BillArp@RoseAveSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 2

	ROSE AVENUE Southeastbound				ROSE AVENUE Southwestbound				BILL ARP ROAD Northbound				
Start Time	Bear Right	Left	Peds	App. Total	Right	Bear Left	Peds	App. Total	Bear Right	Bear Left	Peds	App. Total	Int. Total

Peak Hour Analysis From 1:00:00 PM to 1:00:00 PM - Peak 1 of 1

Greater Traffic Company

File Name : 05
 Site Code : 00000005
 Start Date : 5/12/2009
 Page No : 1

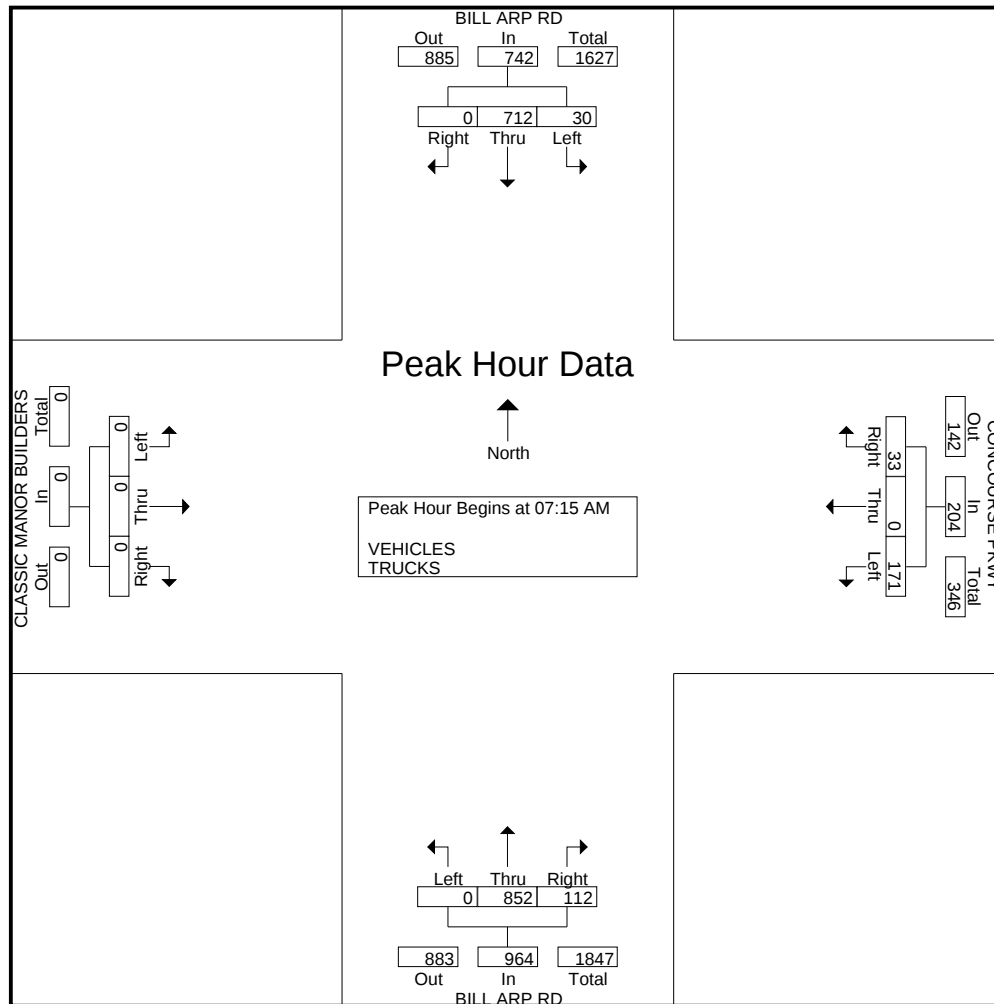
Groups Printed- VEHICLES - TRUCKS

	BILL ARP RD Southbound				CONCOURSE PKWY Westbound				BILL ARP RD Northbound				CLASSIC MANOR BUILDERS Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	9	150	0	159	23	0	6	29	0	81	22	103	0	0	0	0	291
06:45 AM	6	155	0	161	23	0	0	23	0	98	22	120	0	0	0	0	304
Total	15	305	0	320	46	0	6	52	0	179	44	223	0	0	0	0	595
07:00 AM	4	161	0	165	27	0	7	34	0	117	24	141	0	0	0	0	340
07:15 AM	7	176	0	183	38	0	7	45	0	166	32	198	0	0	0	0	426
07:30 AM	8	193	0	201	40	0	8	48	0	210	27	237	0	0	0	0	486
07:45 AM	4	184	0	188	53	0	10	63	0	244	28	272	0	0	0	0	523
Total	23	714	0	737	158	0	32	190	0	737	111	848	0	0	0	0	1775
08:00 AM	11	159	0	170	40	0	8	48	0	232	25	257	0	0	0	0	475
08:15 AM	9	136	0	145	42	0	12	54	0	196	25	221	0	0	0	0	420
*** BREAK ***																	
Total	20	295	0	315	82	0	20	102	0	428	50	478	0	0	0	0	895
*** BREAK ***																	
04:30 PM	17	177	1	195	94	0	27	121	0	189	108	297	0	1	1	2	615
04:45 PM	11	178	0	189	129	0	22	151	0	231	111	342	0	0	0	0	682
Total	28	355	1	384	223	0	49	272	0	420	219	639	0	1	1	2	1297
05:00 PM	18	144	0	162	136	0	19	155	0	233	100	333	0	0	1	1	651
05:15 PM	10	155	0	165	139	0	25	164	0	248	105	353	0	0	0	0	682
05:30 PM	13	142	0	155	126	0	29	155	0	294	113	407	0	0	0	0	717
05:45 PM	11	161	0	172	118	0	19	137	0	265	117	382	0	0	0	0	691
Total	52	602	0	654	519	0	92	611	0	1040	435	1475	0	0	1	1	2741
06:00 PM	13	168	1	182	119	0	18	137	0	267	125	392	0	0	0	0	711
06:15 PM	7	149	0	156	119	0	15	134	0	245	100	345	0	0	0	0	635
Grand Total	158	2588	2	2748	1266	0	232	1498	0	3316	1084	4400	0	1	2	3	8649
Apprch %	5.7	94.2	0.1		84.5	0	15.5		0	75.4	24.6		0	33.3	66.7		
Total %	1.8	29.9	0	31.8	14.6	0	2.7	17.3	0	38.3	12.5	50.9	0	0	0	0	
VEHICLES	158	2580	2	2740	1266	0	232	1498	0	3302	1084	4386	0	1	2	3	8627
% VEHICLES	100	99.7	100	99.7	100	0	100	100	0	99.6	100	99.7	0	100	100	100	99.7
TRUCKS	0	8	0	8	0	0	0	0	0	14	0	14	0	0	0	0	22
% TRUCKS	0	0.3	0	0.3	0	0	0	0	0	0.4	0	0.3	0	0	0	0	0.3

Greater Traffic Company

File Name : 05
 Site Code : 00000005
 Start Date : 5/12/2009
 Page No : 2

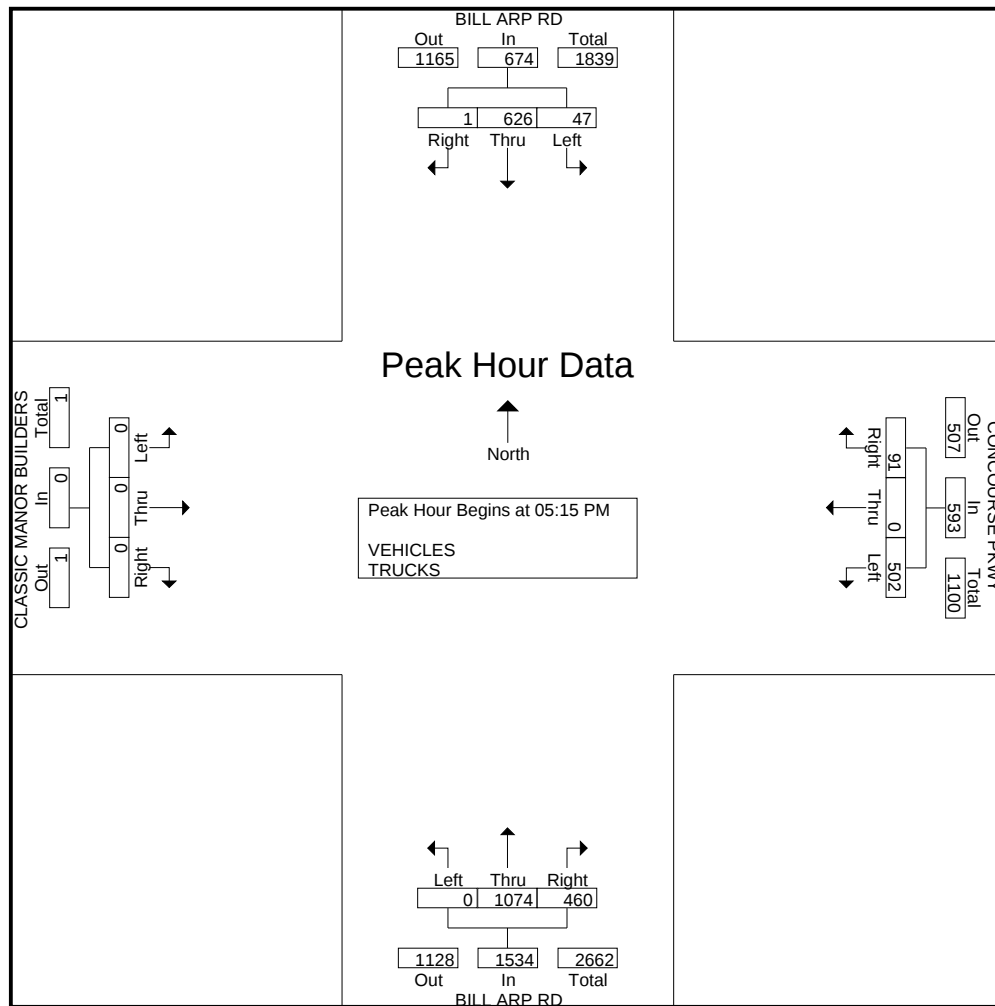
	BILL ARP RD Southbound				CONCOURSE PKWY Westbound				BILL ARP RD Northbound				CLASSIC MANOR BUILDERS Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	7	176	0	183	38	0	7	45	0	166	32	198	0	0	0	0	426
07:30 AM	8	193	0	201	40	0	8	48	0	210	27	237	0	0	0	0	486
07:45 AM	4	184	0	188	53	0	10	63	0	244	28	272	0	0	0	0	523
08:00 AM	11	159	0	170	40	0	8	48	0	232	25	257	0	0	0	0	475
Total Volume	30	712	0	742	171	0	33	204	0	852	112	964	0	0	0	0	1910
% App. Total	4	96	0		83.8	0	16.2		0	88.4	11.6		0	0	0		
PHF	.682	.922	.000	.923	.807	.000	.825	.810	.000	.873	.875	.886	.000	.000	.000	.000	.913



Greater Traffic Company

File Name : 05
 Site Code : 00000005
 Start Date : 5/12/2009
 Page No : 3

	BILL ARP RD Southbound				CONCOURSE PKWY Westbound				BILL ARP RD Northbound				CLASSIC MANOR BUILDERS Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	10	155	0	165	139	0	25	164	0	248	105	353	0	0	0	0	682
05:30 PM	13	142	0	155	126	0	29	155	0	294	113	407	0	0	0	0	717
05:45 PM	11	161	0	172	118	0	19	137	0	265	117	382	0	0	0	0	691
06:00 PM	13	168	1	182	119	0	18	137	0	267	125	392	0	0	0	0	711
Total Volume	47	626	1	674	502	0	91	593	0	1074	460	1534	0	0	0	0	2801
% App. Total	7	92.9	0.1		84.7	0	15.3		0	70	30		0	0	0		
PHF	.904	.932	.250	.926	.903	.000	.784	.904	.000	.913	.920	.942	.000	.000	.000	.000	.977



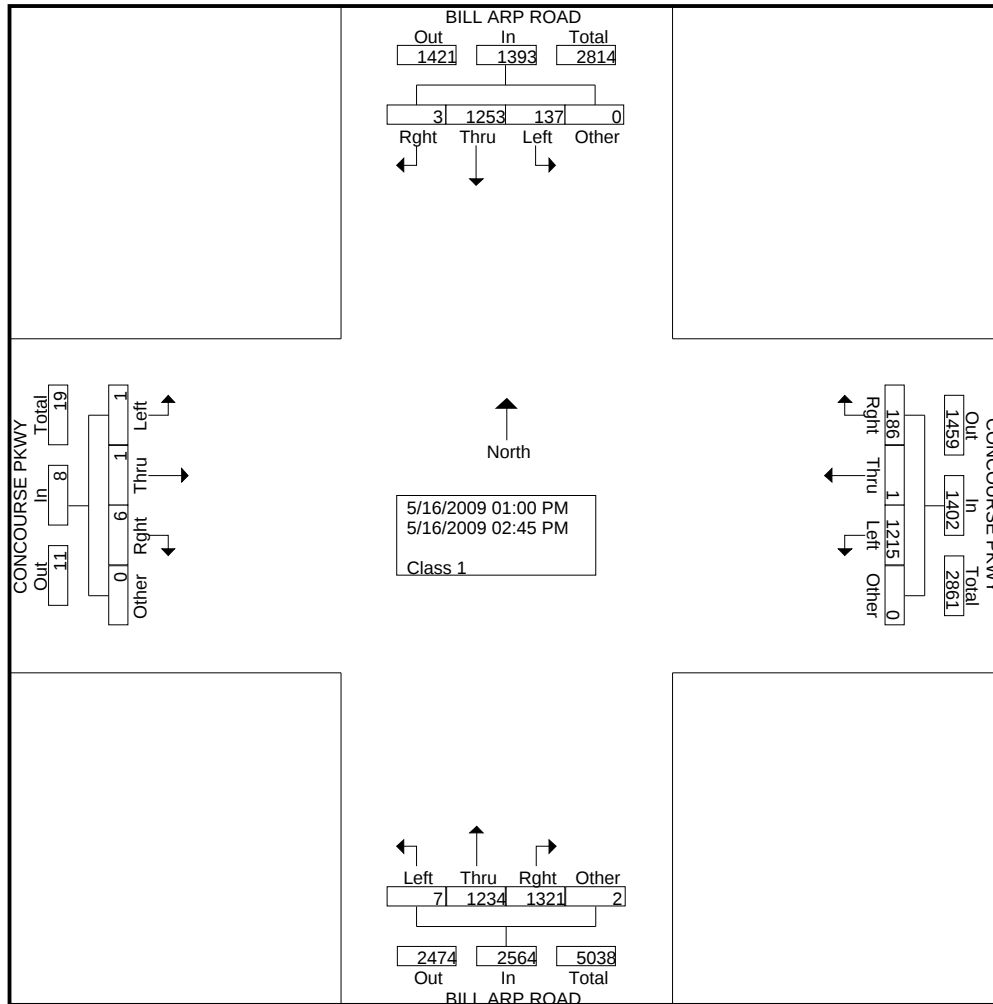
All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : BillArp@ConcoursePkwySat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 1

Groups Printed- Class 1

	BILL ARP ROAD Southbound					CONCOURSE PKWY Westbound					BILL ARP ROAD Northbound					CONCOURSE PKWY Eastbound					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
01:00 PM	1	160	21	0	182	34	0	129	0	163	153	165	1	0	319	1	1	0	0	2	666
01:15 PM	0	128	25	0	153	21	0	152	0	173	179	152	1	2	334	1	0	0	0	1	661
01:30 PM	0	161	15	0	176	21	0	142	0	163	154	167	0	0	321	0	0	0	0	0	660
01:45 PM	1	168	21	0	190	15	0	154	0	169	202	139	1	0	342	1	0	1	0	2	703
Total	2	617	82	0	701	91	0	577	0	668	688	623	3	2	1316	3	1	1	0	5	2690
02:00 PM	0	158	16	0	174	27	0	145	0	172	143	180	0	0	323	0	0	0	0	0	669
02:15 PM	0	150	14	0	164	24	1	177	0	202	148	138	1	0	287	1	0	0	0	1	654
02:30 PM	0	149	20	0	169	18	0	156	0	174	172	148	0	0	320	0	0	0	0	0	663
02:45 PM	1	179	5	0	185	26	0	160	0	186	170	145	3	0	318	2	0	0	0	2	691
Total	1	636	55	0	692	95	1	638	0	734	633	611	4	0	1248	3	0	0	0	3	2677
Grand Total	3	1253	137	0	1393	186	1	1215	0	1402	1321	1234	7	2	2564	6	1	1	0	8	5367
Apprch %	0.2	89.9	9.8	0		13.3	0.1	86.7	0		51.5	48.1	0.3	0.1		75	12.5	12.5	0		
Total %	0.1	23.3	2.6	0	26	3.5	0	22.6	0	26.1	24.6	23	0.1	0	47.8	0.1	0	0	0	0.1	

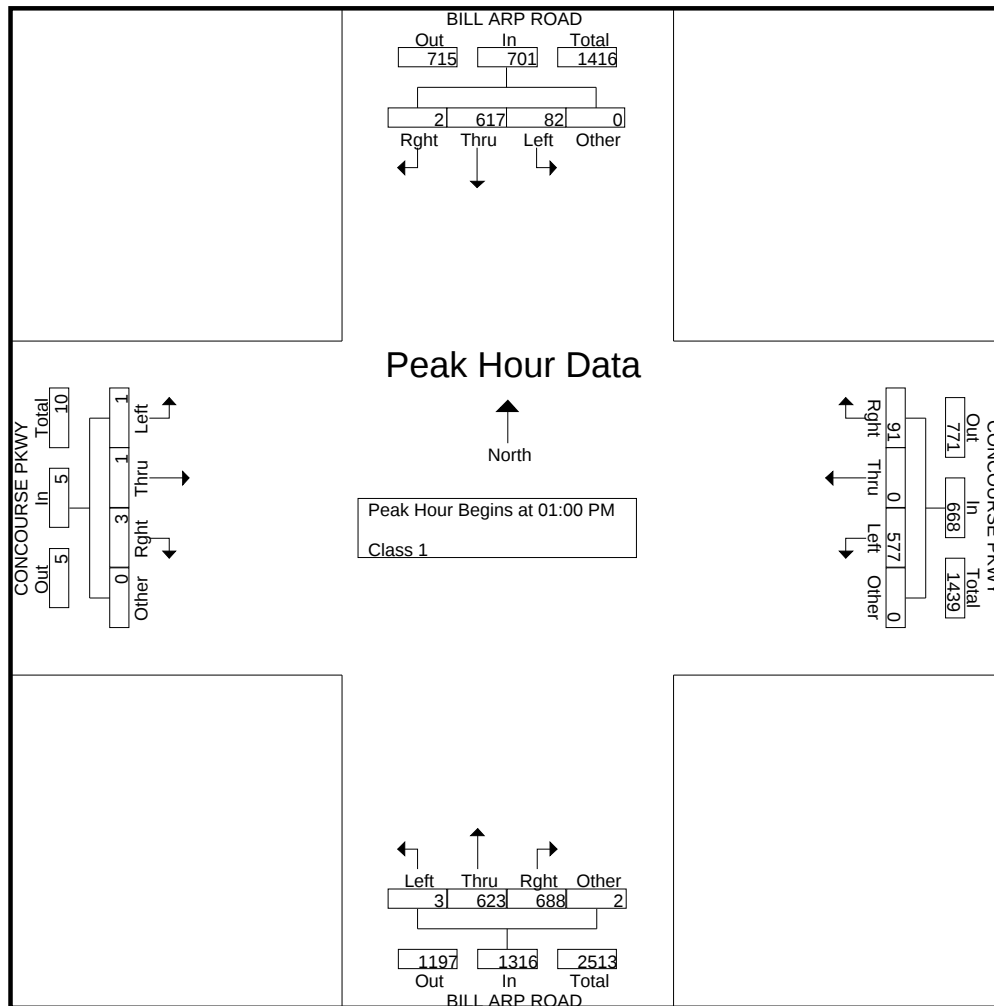


All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : BillArp@ConcoursePkwySat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 2

	BILL ARP ROAD Southbound					CONCOURSE PKWY Westbound					BILL ARP ROAD Northbound					CONCOURSE PKWY Eastbound					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 1:00:00 PM to 1:00:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 1:00:00 PM																					
1:00:00 PM	1	100	17	0	118	17	0	48	0	65	90	102	1	0	193	1	1	0	0	2	378
01:01 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:02 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:03 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	100	17	0	118	17	0	48	0	65	90	102	1	0	193	1	1	0	0	2	378
% App. Total	0.8	84.7	14.4	0		26.2	0	73.8	0		46.6	52.8	0.5	0		50	50	0	0		
PHF	.250	.250	.250	.000	.250	.250	.000	.250	.000	.250	.250	.250	.250	.000	.250	.250	.250	.000	.000	.250	.250



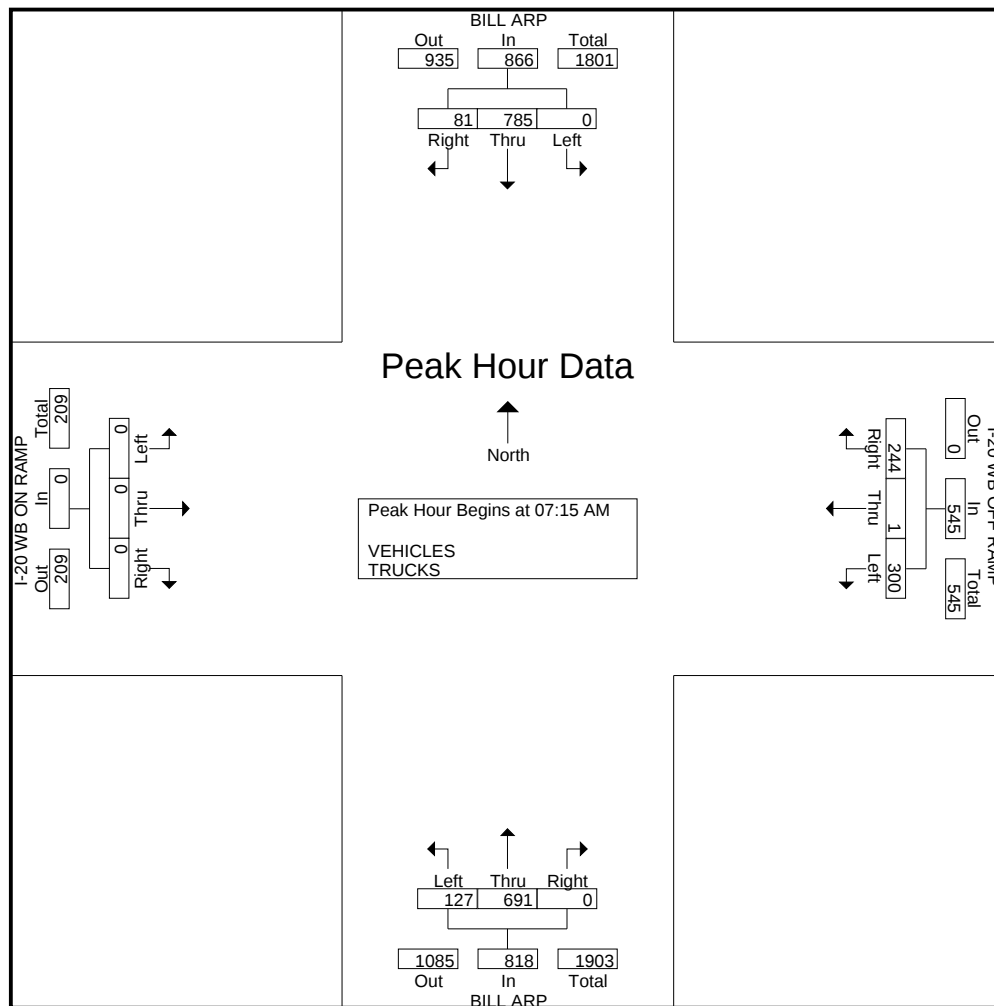
File Name : 06
Site Code : 00000006
Start Date : 5/12/2009
Page No : 1

	BILL ARP Southbound				I-20 WB OFF RAMP Westbound				BILL ARP Northbound				I-20 WB ON RAMP Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	0	157	8	165	32	0	30	62	20	65	0	85	0	0	0	0	312
06:45 AM	0	161	13	174	44	0	29	73	23	78	0	101	0	0	0	0	348
Total	0	318	21	339	76	0	59	135	43	143	0	186	0	0	0	0	660
07:00 AM	0	165	14	179	45	1	49	95	25	86	0	111	0	0	0	0	385
07:15 AM	0	183	22	205	70	0	65	135	34	122	0	156	0	0	0	0	496
07:30 AM	0	209	20	229	68	0	43	111	27	189	0	216	0	0	0	0	556
07:45 AM	0	215	17	232	83	0	80	163	39	185	0	224	0	0	0	0	619
Total	0	772	73	845	266	1	237	504	125	582	0	707	0	0	0	0	2056
08:00 AM	0	178	22	200	79	1	56	136	27	195	0	222	0	0	0	0	558
08:15 AM	0	151	20	171	76	0	65	141	23	161	0	184	0	0	0	0	496
*** BREAK ***																	
Total	0	329	42	371	155	1	121	277	50	356	0	406	0	0	0	0	1054
*** BREAK ***																	
04:30 PM	0	228	36	264	150	0	140	290	77	163	0	240	0	0	0	0	794
04:45 PM	0	242	51	293	217	0	119	336	73	219	0	292	0	0	0	0	921
Total	0	470	87	557	367	0	259	626	150	382	0	532	0	0	0	0	1715
05:00 PM	0	240	41	281	217	0	143	360	77	181	0	258	0	0	0	0	899
05:15 PM	0	246	43	289	230	0	133	363	67	212	0	279	0	0	0	0	931
05:30 PM	0	233	38	271	218	0	164	382	59	229	0	288	0	0	0	0	941
05:45 PM	0	229	44	273	225	0	160	385	55	216	0	271	0	0	0	0	929
Total	0	948	166	1114	890	0	600	1490	258	838	0	1096	0	0	0	0	3700
06:00 PM	0	230	52	282	217	0	163	380	59	223	0	282	0	0	0	0	944
06:15 PM	0	219	45	264	224	0	160	384	75	178	0	253	0	0	0	0	901
Grand Total	0	3286	486	3772	2195	2	1599	3796	760	2702	0	3462	0	0	0	0	11030
Apprch %	0	87.1	12.9		57.8	0.1	42.1		22	78	0		0	0	0		
Total %	0	29.8	4.4	34.2	19.9	0	14.5	34.4	6.9	24.5	0	31.4	0	0	0	0	
VEHICLES	0	3286	486	3772	2195	2	1599	3796									

Greater Traffic Company

File Name : 06
 Site Code : 00000006
 Start Date : 5/12/2009
 Page No : 2

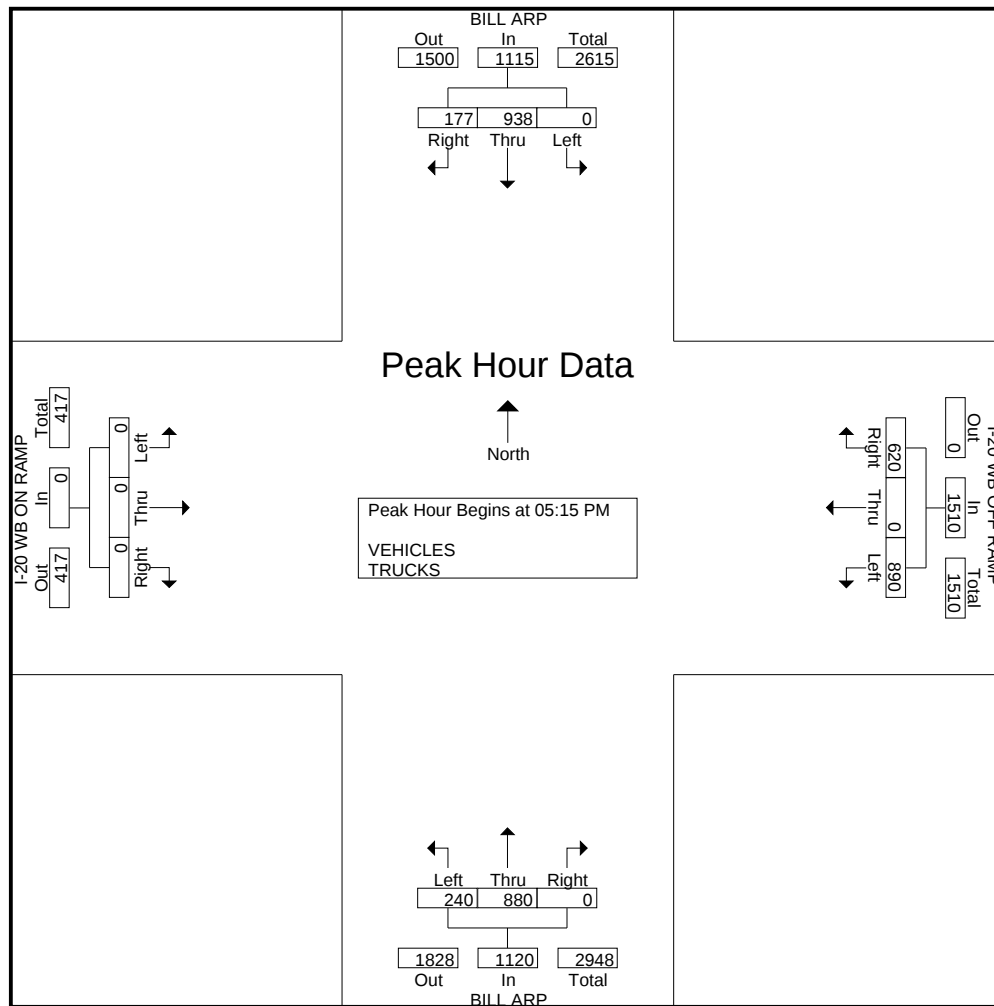
	BILL ARP Southbound				I-20 WB OFF RAMP Westbound				BILL ARP Northbound				I-20 WB ON RAMP Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	183	22	205	70	0	65	135	34	122	0	156	0	0	0	0	496
07:30 AM	0	209	20	229	68	0	43	111	27	189	0	216	0	0	0	0	556
07:45 AM	0	215	17	232	83	0	80	163	39	185	0	224	0	0	0	0	619
08:00 AM	0	178	22	200	79	1	56	136	27	195	0	222	0	0	0	0	558
Total Volume	0	785	81	866	300	1	244	545	127	691	0	818	0	0	0	0	2229
% App. Total	0	90.6	9.4		55	0.2	44.8		15.5	84.5	0		0	0	0		
PHF	.000	.913	.920	.933	.904	.250	.763	.836	.814	.886	.000	.913	.000	.000	.000	.000	.900



Greater Traffic Company

File Name : 06
 Site Code : 00000006
 Start Date : 5/12/2009
 Page No : 3

	BILL ARP Southbound				I-20 WB OFF RAMP Westbound				BILL ARP Northbound				I-20 WB ON RAMP Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	0	246	43	289	230	0	133	363	67	212	0	279	0	0	0	0	931
05:30 PM	0	233	38	271	218	0	164	382	59	229	0	288	0	0	0	0	941
05:45 PM	0	229	44	273	225	0	160	385	55	216	0	271	0	0	0	0	929
06:00 PM	0	230	52	282	217	0	163	380	59	223	0	282	0	0	0	0	944
Total Volume	0	938	177	1115	890	0	620	1510	240	880	0	1120	0	0	0	0	3745
% App. Total	0	84.1	15.9		58.9	0	41.1		21.4	78.6	0		0	0	0		
PHF	.000	.953	.851	.965	.967	.000	.945	.981	.896	.961	.000	.972	.000	.000	.000	.000	.992



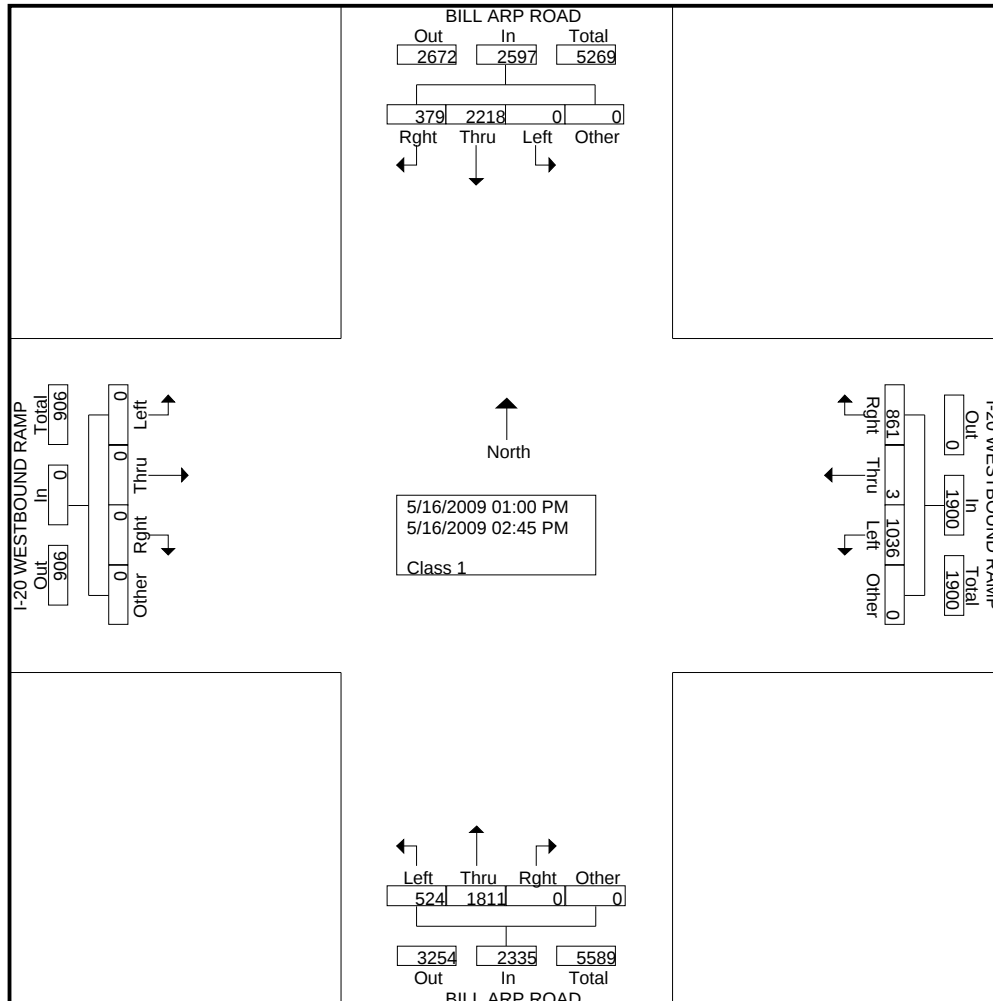
All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : BillArp@I-20WBRampSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 1

Groups Printed- Class 1

	BILL ARP ROAD Southbound					I-20 WESTBOUND RAMP Westbound					BILL ARP ROAD Northbound					I-20 WESTBOUND RAMP Eastbound					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
01:00 PM	59	270	0	0	329	77	0	142	0	219	0	229	84	0	313	0	0	0	0	0	861
01:15 PM	35	288	0	0	323	104	0	121	0	225	0	214	45	0	259	0	0	0	0	0	807
01:30 PM	48	273	0	0	321	101	0	134	0	235	0	241	71	0	312	0	0	0	0	0	868
01:45 PM	36	335	0	0	371	117	0	147	0	264	0	232	46	0	278	0	0	0	0	0	913
Total	178	1166	0	0	1344	399	0	544	0	943	0	916	246	0	1162	0	0	0	0	0	3449
02:00 PM	42	259	0	0	301	125	2	139	0	266	0	234	87	0	321	0	0	0	0	0	888
02:15 PM	65	267	0	0	332	99	1	112	0	212	0	214	58	0	272	0	0	0	0	0	816
02:30 PM	45	259	0	0	304	117	0	120	0	237	0	227	70	0	297	0	0	0	0	0	838
02:45 PM	49	267	0	0	316	121	0	121	0	242	0	220	63	0	283	0	0	0	0	0	841
Total	201	1052	0	0	1253	462	3	492	0	957	0	895	278	0	1173	0	0	0	0	0	3383
Grand Total	379	2218	0	0	2597	861	3	1036	0	1900	0	1811	524	0	2335	0	0	0	0	0	6832
Apprch %	14.6	85.4	0	0		45.3	0.2	54.5	0		0	77.6	22.4	0		0	0	0	0	0	
Total %	5.5	32.5	0	0	38	12.6	0	15.2	0	27.8	0	26.5	7.7	0	34.2	0	0	0	0	0	



All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : BillArp@I-20WBRampSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 2

	BILL ARP ROAD Southbound					I-20 WESTBOUND RAMP Westbound					BILL ARP ROAD Northbound					I-20 WESTBOUND RAMP Eastbound					
Start Time	Rgh t	Thr u	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total

Peak Hour Analysis From 1:00:00 PM to 1:00:00 PM - Peak 1 of 1

Greater Traffic Company

File Name : 07
 Site Code : 00000007
 Start Date : 5/12/2009
 Page No : 1

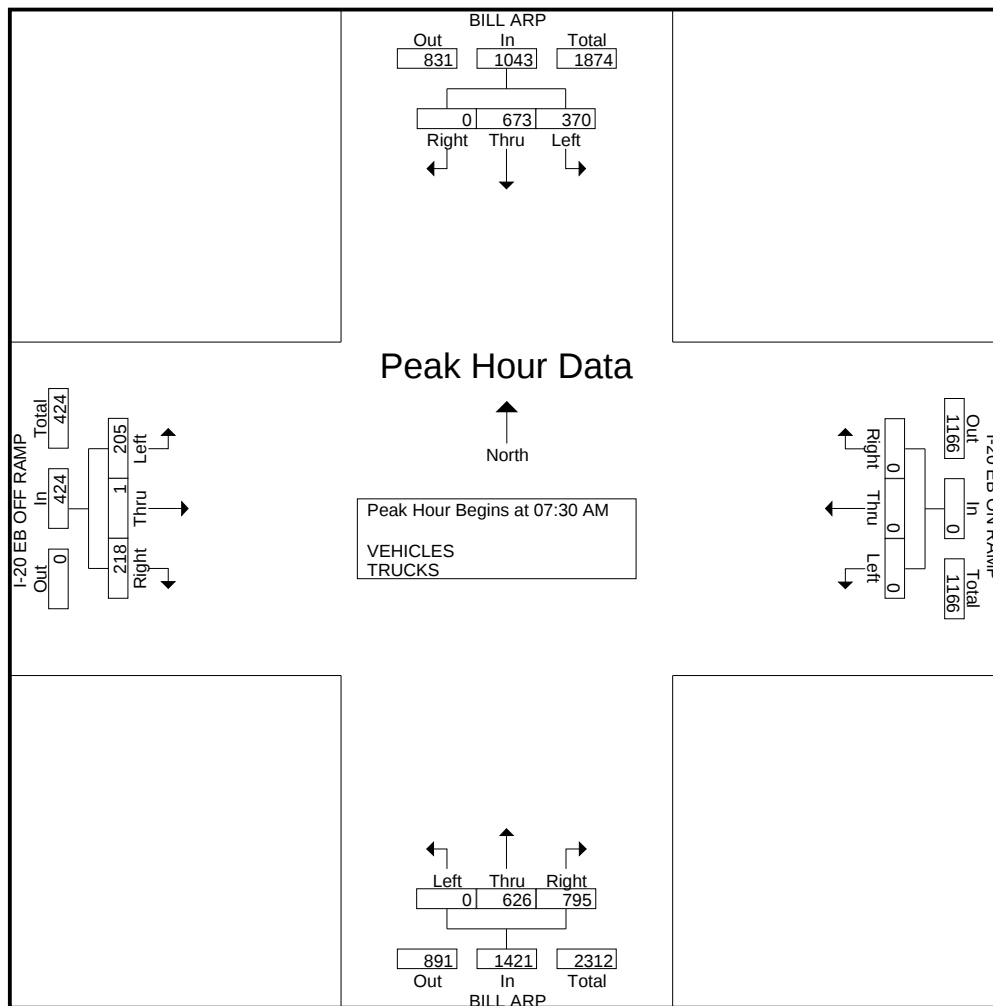
Groups Printed- VEHICLES - TRUCKS

	BILL ARP Southbound				I-20 EB ON RAMP Westbound				BILL ARP Northbound				I-20 EB OFF RAMP Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	117	69	0	186	0	0	0	0	0	54	235	289	25	1	30	56	531
06:45 AM	121	77	0	198	0	0	0	0	0	72	220	292	21	0	36	57	547
Total	238	146	0	384	0	0	0	0	0	126	455	581	46	1	66	113	1078
07:00 AM	96	110	0	206	0	0	0	0	0	85	197	282	30	0	31	61	549
07:15 AM	117	130	0	247	0	0	0	0	0	114	207	321	35	0	28	63	631
07:30 AM	119	156	0	275	0	0	0	0	0	159	223	382	46	1	62	109	766
07:45 AM	112	178	0	290	0	0	0	0	0	155	211	366	62	0	65	127	783
Total	444	574	0	1018	0	0	0	0	0	513	838	1351	173	1	186	360	2729
08:00 AM	80	172	0	252	0	0	0	0	0	162	188	350	58	0	46	104	706
08:15 AM	59	167	0	226	0	0	0	0	0	150	173	323	39	0	45	84	633
*** BREAK ***																	
Total	139	339	0	478	0	0	0	0	0	312	361	673	97	0	91	188	1339
*** BREAK ***																	
04:30 PM	55	318	0	373	0	0	0	0	0	192	90	282	43	0	45	88	743
04:45 PM	57	389	0	446	0	0	0	0	0	245	115	360	42	0	42	84	890
Total	112	707	0	819	0	0	0	0	0	437	205	642	85	0	87	172	1633
05:00 PM	54	395	0	449	0	0	0	0	0	217	137	354	35	0	43	78	881
05:15 PM	55	412	0	467	0	0	0	0	0	240	102	342	32	0	55	87	896
05:30 PM	55	408	0	463	0	0	0	0	0	261	94	355	20	1	33	54	872
05:45 PM	71	379	0	450	0	0	0	0	0	245	105	350	33	0	58	91	891
Total	235	1594	0	1829	0	0	0	0	0	963	438	1401	120	1	189	310	3540
06:00 PM	67	372	0	439	0	0	0	0	0	248	120	368	27	0	47	74	881
06:15 PM	52	385	0	437	0	0	0	0	0	223	113	336	38	0	56	94	867
Grand Total	1287	4117	0	5404	0	0	0	0	0	2822	2530	5352	586	3	722	1311	12067
Apprch %	23.8	76.2	0		0	0	0		0	52.7	47.3		44.7	0.2	55.1		
Total %	10.7	34.1	0	44.8	0	0	0	0	0	23.4	21	44.4	4.9	0	6	10.9	
VEHICLES	1270	4112	0	5382	0	0	0	0	0	2817	2518	5335	581	3	720	1304	12021
% VEHICLES	98.7	99.9	0	99.6	0	0	0	0	0	99.8	99.5	99.7	99.1	100	99.7	99.5	99.6
TRUCKS	17	5	0	22	0	0	0	0	0	5	12	17	5	0	2	7	46
% TRUCKS	1.3	0.1	0	0.4	0	0	0	0	0	0.2	0.5	0.3	0.9	0	0.3	0.5	0.4

Greater Traffic Company

File Name : 07
 Site Code : 00000007
 Start Date : 5/12/2009
 Page No : 2

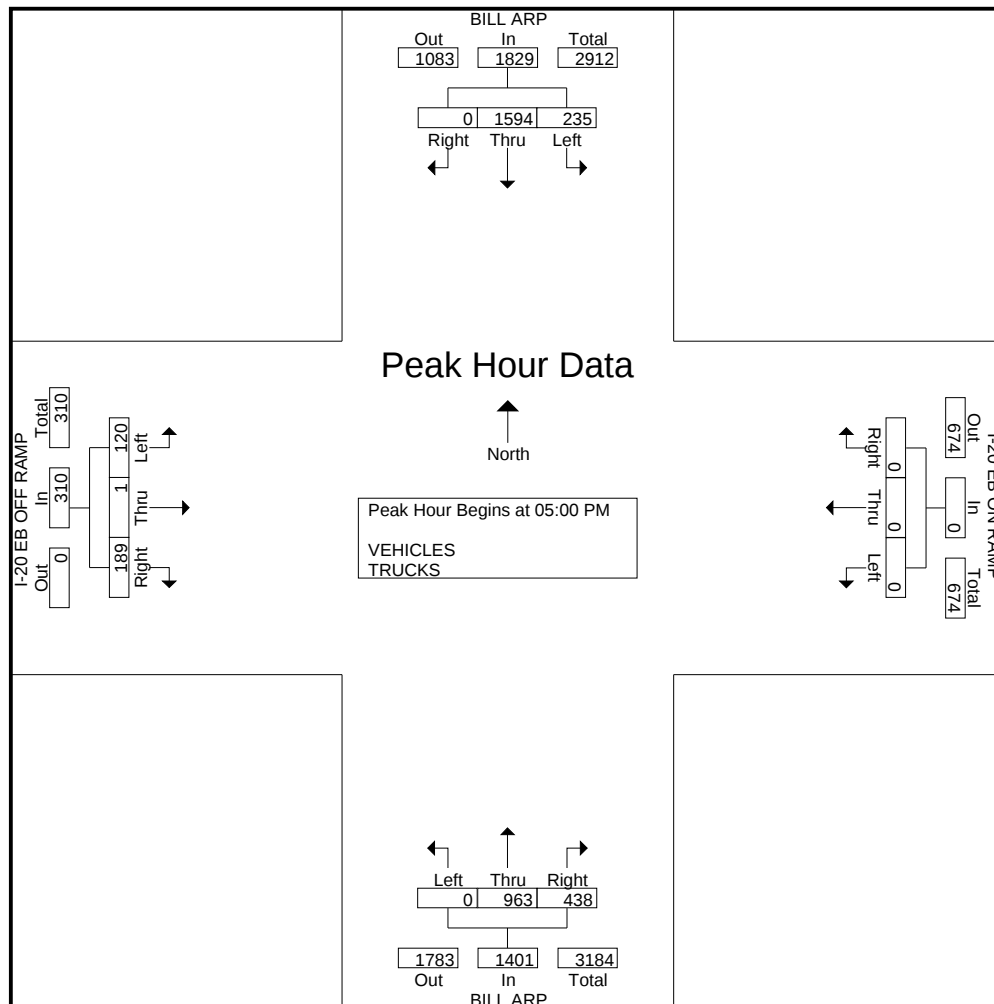
	BILL ARP Southbound				I-20 EB ON RAMP Westbound				BILL ARP Northbound				I-20 EB OFF RAMP Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	119	156	0	275	0	0	0	0	0	159	223	382	46	1	62	109	766
07:45 AM	112	178	0	290	0	0	0	0	0	155	211	366	62	0	65	127	783
08:00 AM	80	172	0	252	0	0	0	0	0	162	188	350	58	0	46	104	706
08:15 AM	59	167	0	226	0	0	0	0	0	150	173	323	39	0	45	84	633
Total Volume	370	673	0	1043	0	0	0	0	0	626	795	1421	205	1	218	424	2888
% App. Total	35.5	64.5	0		0	0	0		0	44.1	55.9		48.3	0.2	51.4		
PHF	.777	.945	.000	.899	.000	.000	.000	.000	.000	.966	.891	.930	.827	.250	.838	.835	.922



Greater Traffic Company

File Name : 07
 Site Code : 00000007
 Start Date : 5/12/2009
 Page No : 3

	BILL ARP Southbound				I-20 EB ON RAMP Westbound				BILL ARP Northbound				I-20 EB OFF RAMP Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	54	395	0	449	0	0	0	0	0	217	137	354	35	0	43	78	881
05:15 PM	55	412	0	467	0	0	0	0	0	240	102	342	32	0	55	87	896
05:30 PM	55	408	0	463	0	0	0	0	0	261	94	355	20	1	33	54	872
05:45 PM	71	379	0	450	0	0	0	0	0	245	105	350	33	0	58	91	891
Total Volume	235	1594	0	1829	0	0	0	0	0	963	438	1401	120	1	189	310	3540
% App. Total	12.8	87.2	0		0	0	0		0	68.7	31.3		38.7	0.3	61		
PHF	.827	.967	.000	.979	.000	.000	.000	.000	.000	.922	.799	.987	.857	.250	.815	.852	.988



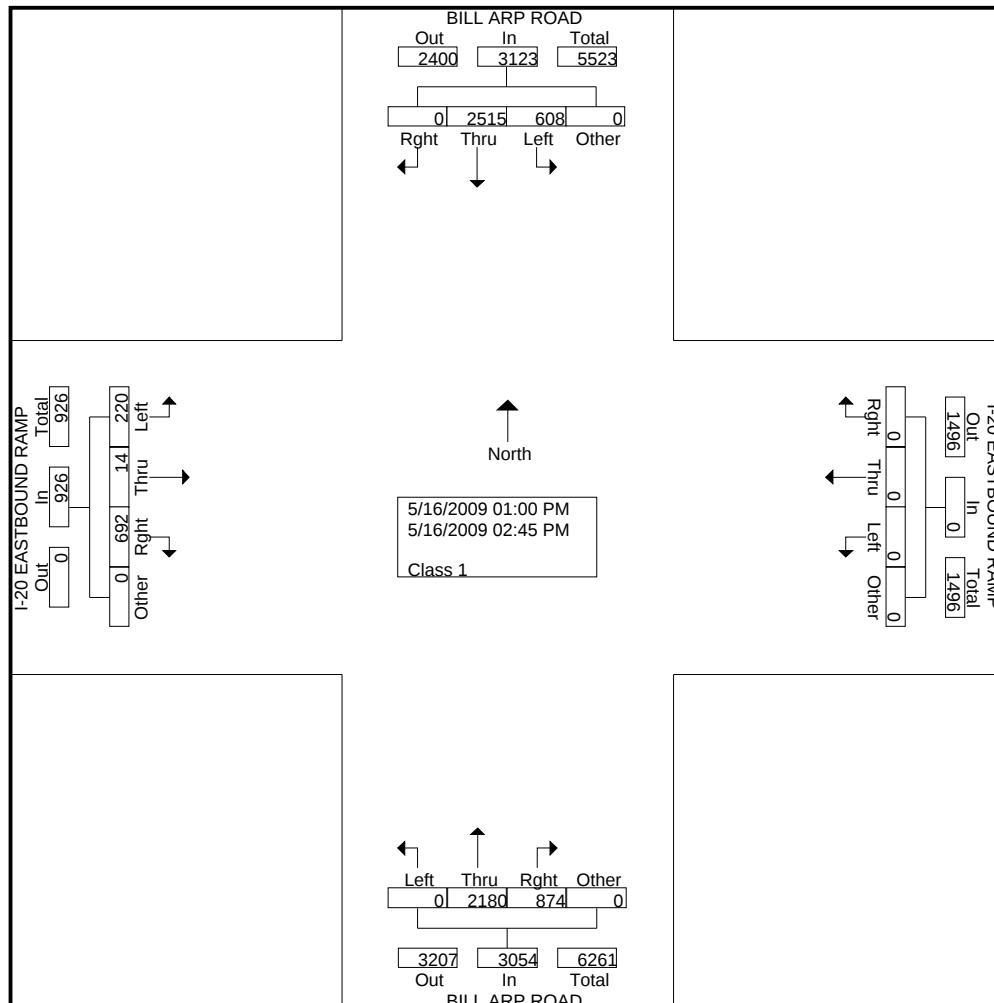
All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : BillArp@I-20EBRampSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 1

Groups Printed- Class 1

	BILL ARP ROAD Southbound					I-20 EASTBOUND RAMP Westbound					BILL ARP ROAD Northbound					I-20 EASTBOUND RAMP Eastbound					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
01:00 PM	0	305	74	0	379	0	0	0	0	0	91	266	0	0	357	87	3	26	0	116	852
01:15 PM	0	302	69	0	371	0	0	0	0	0	109	232	0	0	341	84	3	29	0	116	828
01:30 PM	0	326	77	0	403	0	0	0	0	0	114	283	0	0	397	79	1	37	0	117	917
01:45 PM	0	339	75	0	414	0	0	0	0	0	92	248	0	0	340	81	2	41	0	124	878
Total	0	1272	295	0	1567	0	0	0	0	0	406	1029	0	0	1435	331	9	133	0	473	3475
02:00 PM	0	327	80	0	407	0	0	0	0	0	100	297	0	0	397	94	2	23	0	119	923
02:15 PM	0	283	83	0	366	0	0	0	0	0	125	280	0	0	405	106	1	32	0	139	910
02:30 PM	0	301	74	0	375	0	0	0	0	0	117	280	0	0	397	70	1	20	0	91	863
02:45 PM	0	332	76	0	408	0	0	0	0	0	126	294	0	0	420	91	1	12	0	104	932
Total	0	1243	313	0	1556	0	0	0	0	0	468	1151	0	0	1619	361	5	87	0	453	3628
Grand Total	0	2515	608	0	3123	0	0	0	0	0	874	2180	0	0	3054	692	14	220	0	926	7103
Apprch %	0	80.5	19.5	0		0	0	0	0		28.6	71.4	0	0		74.7	1.5	23.8	0		
Total %	0	35.4	8.6	0	44	0	0	0	0	0	12.3	30.7	0	0	43	9.7	0.2	3.1	0	13	

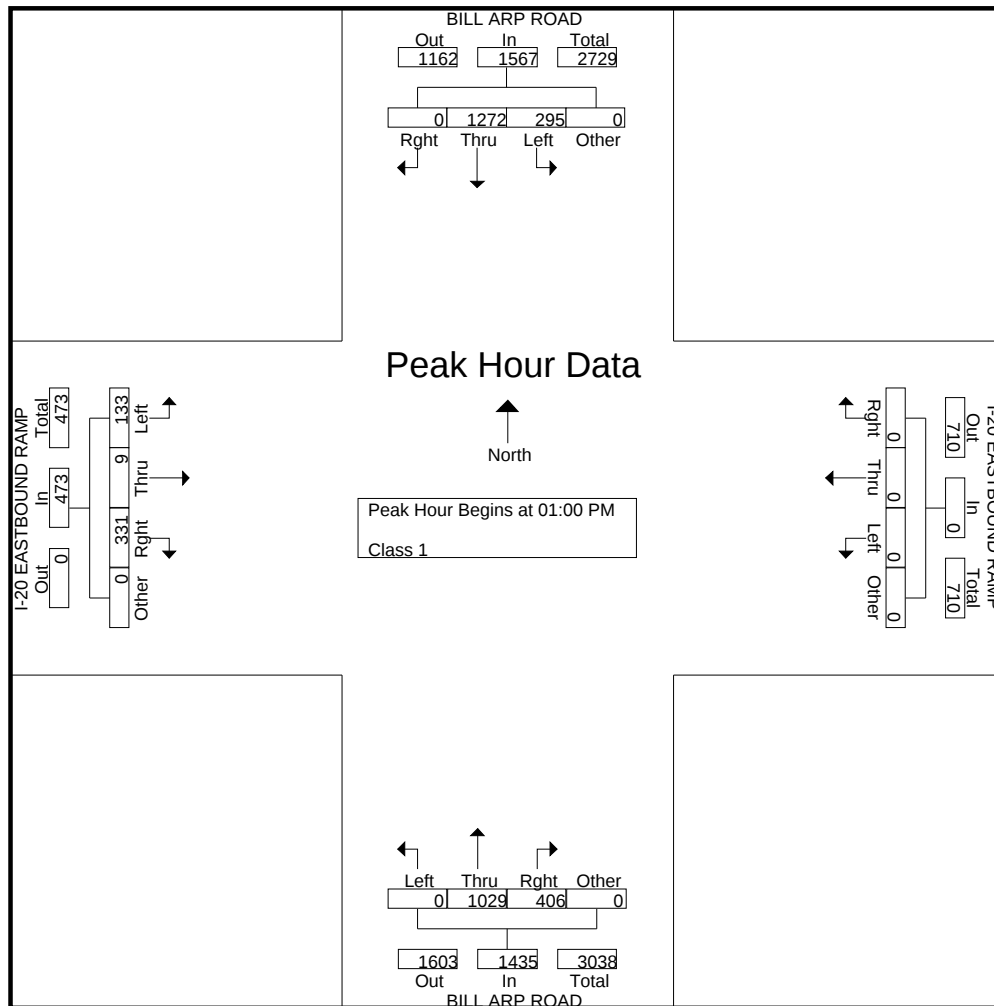


All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : BillArp@I-20EBRampSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 2

	BILL ARP ROAD Southbound					I-20 EASTBOUND RAMP Westbound					BILL ARP ROAD Northbound					I-20 EASTBOUND RAMP Eastbound					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 1:00:00 PM to 1:00:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 1:00:00 PM																					
1:00:00 PM	0	156	42	0	198	0	0	0	0	0	43	170	0	0	213	42	2	12	0	56	467
01:01 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:02 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:03 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	156	42	0	198	0	0	0	0	0	43	170	0	0	213	42	2	12	0	56	467
% App. Total	0	78.8	21.2	0		0	0	0	0		20.2	79.8	0	0		75	3.6	21.4	0		
PHF	.000	.250	.250	.000	.250	.000	.000	.000	.000	.000	.250	.250	.000	.000	.250	.250	.250	.000	.000	.250	.250



Greater Traffic Company

File Name : 08
 Site Code : 00000008
 Start Date : 5/12/2009
 Page No : 1

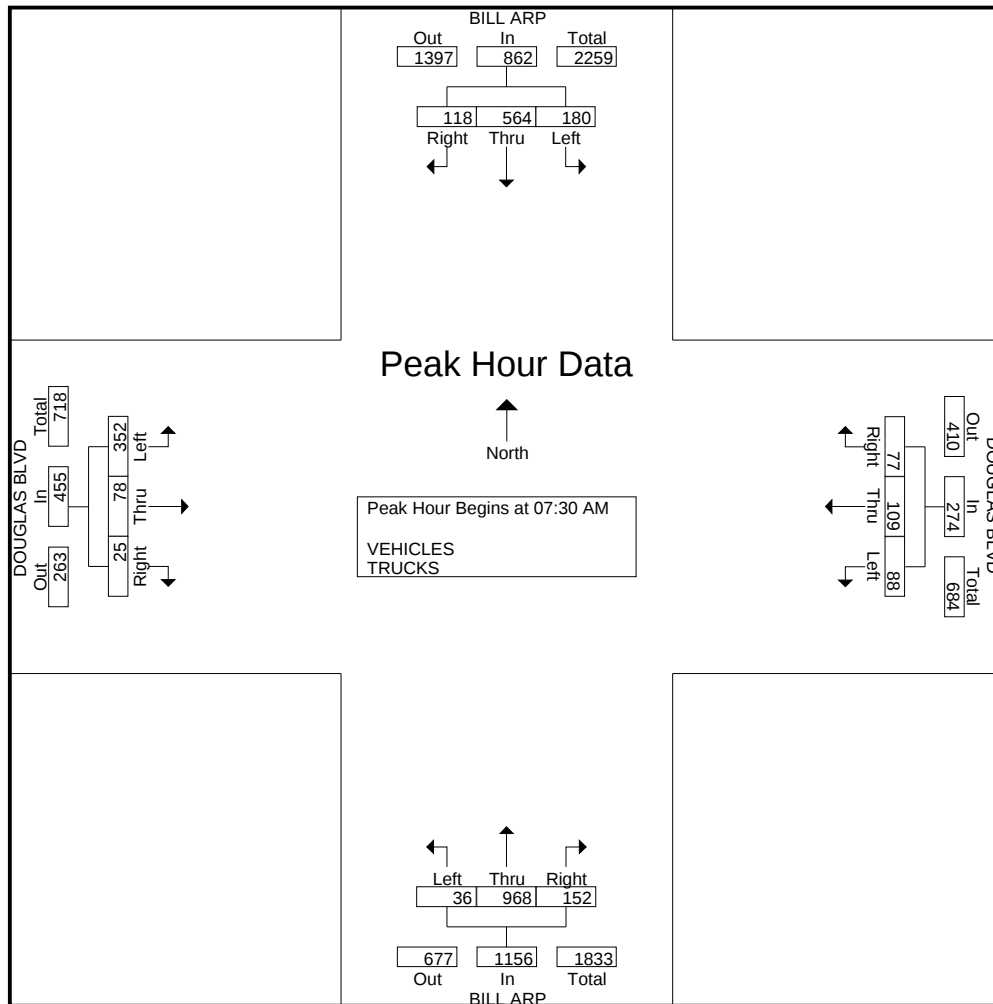
Groups Printed- VEHICLES - TRUCKS

	BILL ARP Southbound				DOUGLAS BLVD Westbound				BILL ARP Northbound				DOUGLAS BLVD Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	21	65	10	96	12	5	14	31	2	199	21	222	59	17	3	79	428
06:45 AM	31	61	19	111	13	9	7	29	4	225	25	254	54	14	2	70	464
Total	52	126	29	207	25	14	21	60	6	424	46	476	113	31	5	149	892
07:00 AM	27	87	18	132	19	17	15	51	11	206	16	233	67	13	5	85	501
07:15 AM	38	92	31	161	15	30	19	64	9	220	21	250	90	14	4	108	583
07:30 AM	36	143	29	208	28	34	9	71	6	246	33	285	120	20	3	143	707
07:45 AM	45	159	30	234	16	28	20	64	12	249	40	301	96	24	4	124	723
Total	146	481	108	735	78	109	63	250	38	921	110	1069	373	71	16	460	2514
08:00 AM	48	140	24	212	20	21	24	65	10	242	36	288	77	21	7	105	670
08:15 AM	51	122	35	208	24	26	24	74	8	231	43	282	59	13	11	83	647
*** BREAK ***																	
Total	99	262	59	420	44	47	48	139	18	473	79	570	136	34	18	188	1317
*** BREAK ***																	
04:30 PM	99	209	48	356	75	36	84	195	21	123	48	192	78	66	20	164	907
04:45 PM	89	271	62	422	83	41	103	227	21	165	44	230	81	71	16	168	1047
Total	188	480	110	778	158	77	187	422	42	288	92	422	159	137	36	332	1954
05:00 PM	76	289	64	429	71	38	122	231	17	154	50	221	83	69	17	169	1050
05:15 PM	101	295	60	456	60	38	120	218	29	142	50	221	85	50	21	156	1051
05:30 PM	93	277	66	436	71	40	109	220	27	157	53	237	86	45	19	150	1043
05:45 PM	81	270	78	429	75	42	107	224	28	141	74	243	99	57	17	173	1069
Total	351	1131	268	1750	277	158	458	893	101	594	227	922	353	221	74	648	4213
06:00 PM	104	254	54	412	64	50	110	224	30	167	57	254	82	51	25	158	1048
06:15 PM	97	268	69	434	66	55	111	232	14	152	68	234	80	40	12	132	1032
Grand Total	1037	3002	697	4736	712	510	998	2220	249	3019	679	3947	1296	585	186	2067	12970
Apprch %	21.9	63.4	14.7		32.1	23	45		6.3	76.5	17.2		62.7	28.3	9		
Total %	8	23.1	5.4	36.5	5.5	3.9	7.7	17.1	1.9	23.3	5.2	30.4	10	4.5	1.4	15.9	
VEHICLES	1037	3002	696	4735	712	510	998	2220	249	3019	679	3947	1295	585	186	2066	12968
% VEHICLES	100	100	99.9	100	100	100	100	100	100	100	100	100	99.9	100	100	100	100
TRUCKS	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1	2
% TRUCKS	0	0	0.1	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0

Greater Traffic Company

File Name : 08
 Site Code : 00000008
 Start Date : 5/12/2009
 Page No : 2

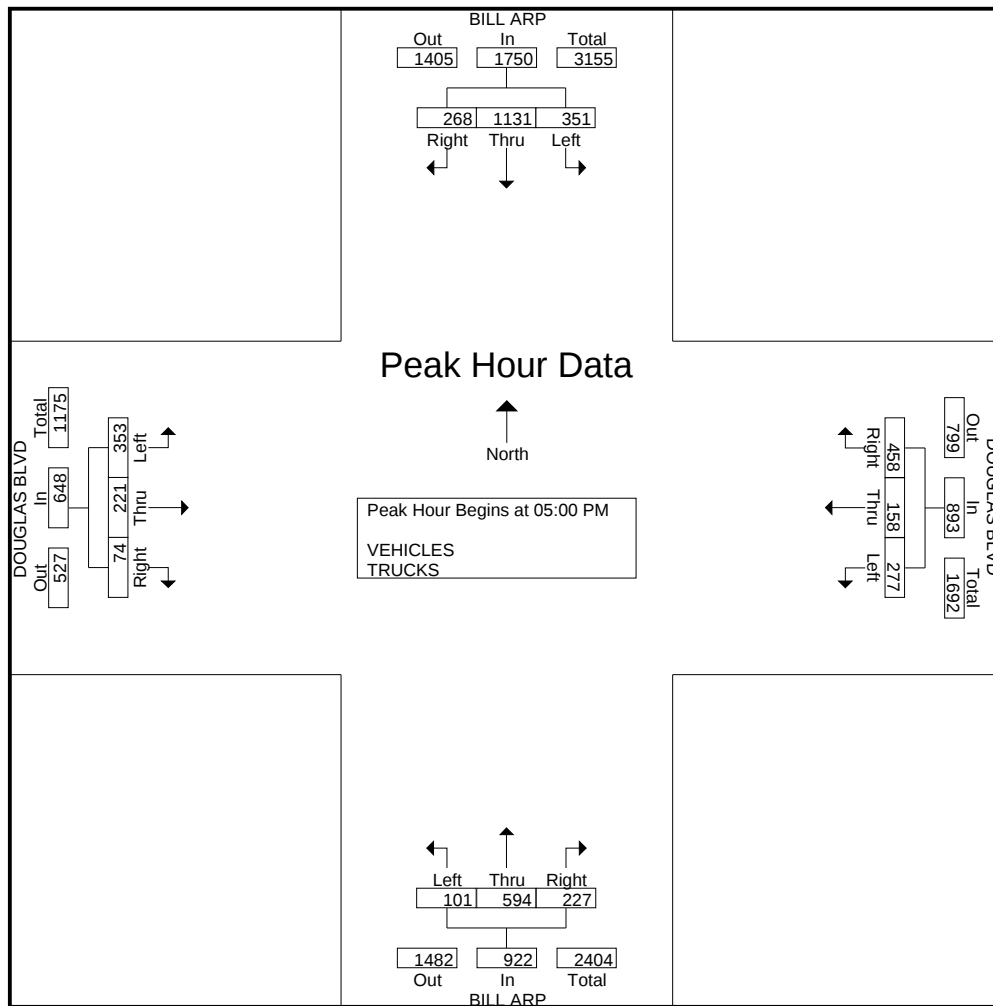
	BILL ARP Southbound				DOUGLAS BLVD Westbound				BILL ARP Northbound				DOUGLAS BLVD Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	36	143	29	208	28	34	9	71	6	246	33	285	120	20	3	143	707
07:45 AM	45	159	30	234	16	28	20	64	12	249	40	301	96	24	4	124	723
08:00 AM	48	140	24	212	20	21	24	65	10	242	36	288	77	21	7	105	670
08:15 AM	51	122	35	208	24	26	24	74	8	231	43	282	59	13	11	83	647
Total Volume	180	564	118	862	88	109	77	274	36	968	152	1156	352	78	25	455	2747
% App. Total	20.9	65.4	13.7		32.1	39.8	28.1		3.1	83.7	13.1		77.4	17.1	5.5		
PHF	.882	.887	.843	.921	.786	.801	.802	.926	.750	.972	.884	.960	.733	.813	.568	.795	.950



Greater Traffic Company

File Name : 08
 Site Code : 00000008
 Start Date : 5/12/2009
 Page No : 3

	BILL ARP Southbound				DOUGLAS BLVD Westbound				BILL ARP Northbound				DOUGLAS BLVD Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	76	289	64	429	71	38	122	231	17	154	50	221	83	69	17	169	1050
05:15 PM	101	295	60	456	60	38	120	218	29	142	50	221	85	50	21	156	1051
05:30 PM	93	277	66	436	71	40	109	220	27	157	53	237	86	45	19	150	1043
05:45 PM	81	270	78	429	75	42	107	224	28	141	74	243	99	57	17	173	1069
Total Volume	351	1131	268	1750	277	158	458	893	101	594	227	922	353	221	74	648	4213
% App. Total	20.1	64.6	15.3		31	17.7	51.3		11	64.4	24.6		54.5	34.1	11.4		
PHF	.869	.958	.859	.959	.923	.940	.939	.966	.871	.946	.767	.949	.891	.801	.881	.936	.985



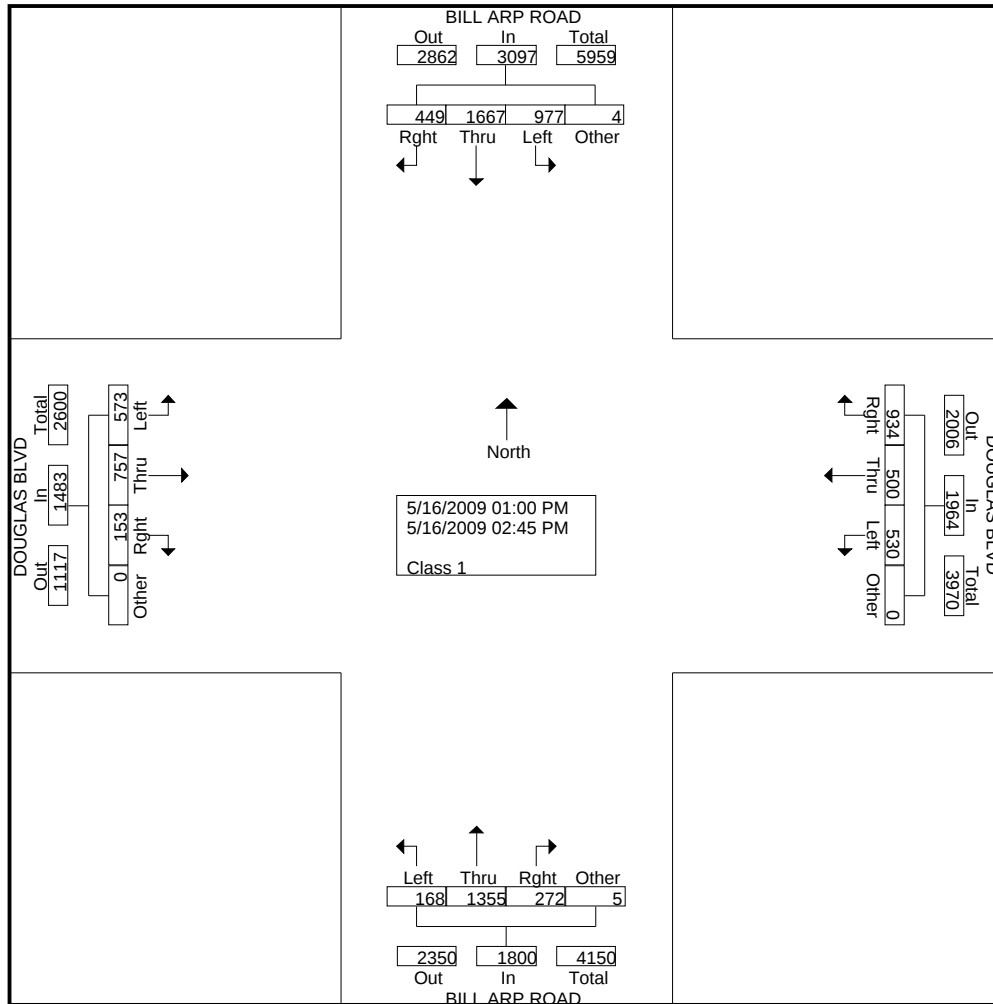
All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : BillArp@DouglasBlvdSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 1

Groups Printed- Class 1

	BILL ARP ROAD Southbound					DOUGLAS BLVD Westbound					BILL ARP ROAD Northbound					DOUGLAS BLVD Eastbound					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
01:00 PM	62	212	127	0	401	92	62	75	0	229	24	176	23	1	224	19	89	70	0	178	1032
01:15 PM	63	200	122	0	385	101	63	53	0	217	32	167	18	2	219	12	119	69	0	200	1021
01:30 PM	52	205	114	0	371	113	60	68	0	241	34	170	23	1	228	23	97	80	0	200	1040
01:45 PM	55	238	114	1	408	120	60	70	0	250	45	160	22	0	227	21	86	71	0	178	1063
Total	232	855	477	1	1565	426	245	266	0	937	135	673	86	4	898	75	391	290	0	756	4156
02:00 PM	58	210	135	0	403	122	69	70	0	261	39	172	14	1	226	20	84	66	0	170	1060
02:15 PM	50	195	117	2	364	131	68	55	0	254	32	168	24	0	224	24	105	71	0	200	1042
02:30 PM	56	215	120	0	391	128	65	68	0	261	37	174	18	0	229	16	92	74	0	182	1063
02:45 PM	53	192	128	1	374	127	53	71	0	251	29	168	26	0	223	18	85	72	0	175	1023
Total	217	812	500	3	1532	508	255	264	0	1027	137	682	82	1	902	78	366	283	0	727	4188
Grand Total	449	1667	977	4	3097	934	500	530	0	1964	272	1355	168	5	1800	153	757	573	0	1483	8344
Apprch %	14.5	53.8	31.5	0.1		47.6	25.5	27	0		15.1	75.3	9.3	0.3		10.3	51	38.6	0		
Total %	5.4	20	11.7	0	37.1	11.2	6	6.4	0	23.5	3.3	16.2	2	0.1	21.6	1.8	9.1	6.9	0	17.8	

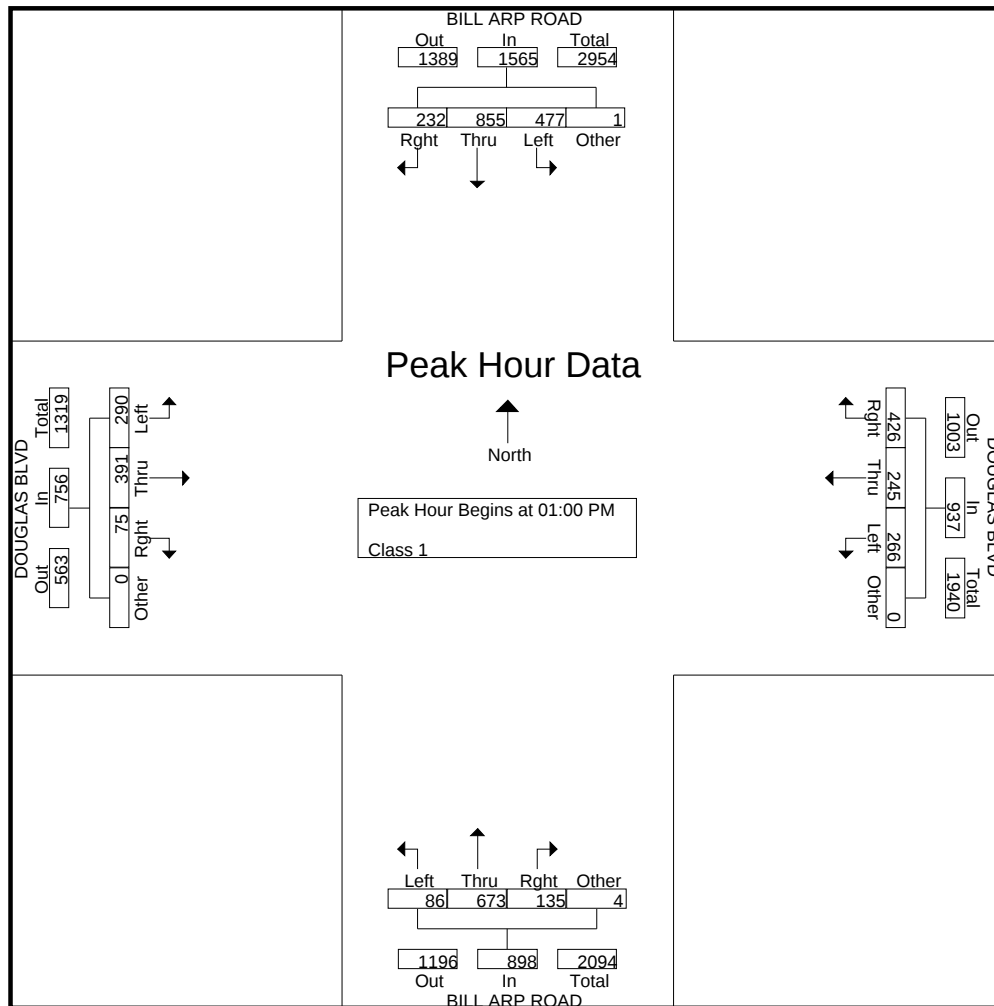


All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : BillArp@DouglasBlvdSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 2

	BILL ARP ROAD Southbound					DOUGLAS BLVD Westbound					BILL ARP ROAD Northbound					DOUGLAS BLVD Eastbound					
Start Time	Rgh t	Thr u	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 1:00:00 PM to 1:00:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 1:00:00 PM																					
1:00:00 PM	40	107	59	0	206	49	32	46	0	127	15	102	11	0	128	12	48	44	0	104	565
01:01 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:02 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:03 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	40	107	59	0	206	49	32	46	0	127	15	102	11	0	128	12	48	44	0	104	565
% App. Total	19.4	51.9	28.6	0		38.6	25.2	36.2	0		11.7	79.7	8.6	0		11.5	46.2	42.3	0		
PHF	.250	.250	.250	.000	.250	.250	.250	.250	.000	.250	.250	.250	.250	.000	.250	.250	.250	.250	.000	.250	.250



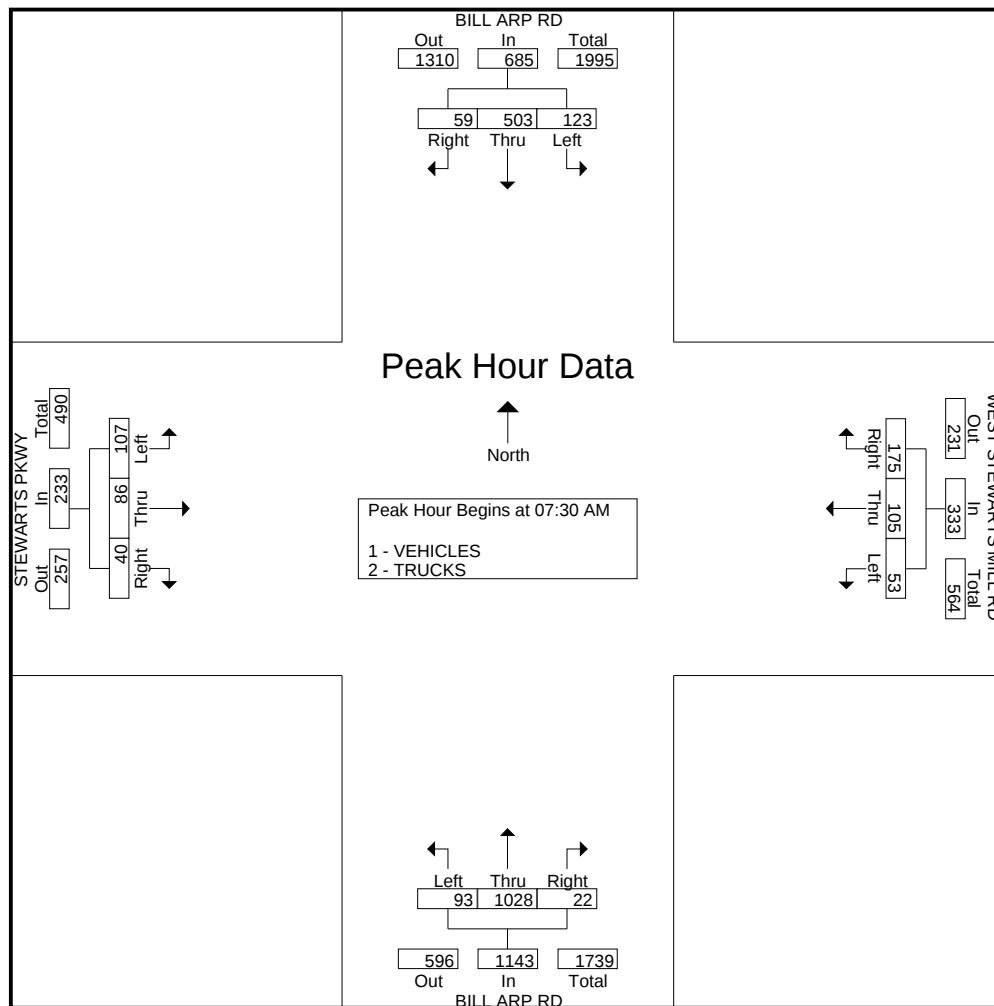
File Name : 09
Site Code : 00000009
Start Date : 5/19/2009
Page No : 1

	BILL ARP RD Southbound				WEST STEWARTS MILL RD Westbound				BILL ARP RD Northbound				STEWARTS PKWY Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	6	40	6	52	3	5	19	27	2	207	5	214	3	0	6	9	302
06:45 AM	8	68	3	79	7	9	24	40	10	190	3	203	14	3	1	18	340
Total	14	108	9	131	10	14	43	67	12	397	8	417	17	3	7	27	642
07:00 AM	15	62	5	82	9	9	38	56	4	219	8	231	18	12	5	35	404
07:15 AM	19	107	7	133	13	14	43	70	10	214	12	236	10	14	5	29	468
07:30 AM	23	102	6	131	7	17	43	67	13	255	4	272	22	24	6	52	522
07:45 AM	34	144	5	183	16	28	50	94	19	272	6	297	28	23	9	60	634
Total	91	415	23	529	45	68	174	287	46	960	30	1036	78	73	25	176	2028
08:00 AM	38	150	23	211	12	31	45	88	30	257	7	294	30	25	9	64	657
08:15 AM	28	107	25	160	18	29	37	84	31	244	5	280	27	14	16	57	581
*** BREAK ***																	
Total	66	257	48	371	30	60	82	172	61	501	12	574	57	39	25	121	1238
04:30 PM	59	238	37	334	10	44	52	106	41	184	6	231	53	50	43	146	817
04:45 PM	60	247	19	326	7	36	43	86	38	207	7	252	57	34	42	133	797
Total	119	485	56	660	17	80	95	192	79	391	13	483	110	84	85	279	1614
05:00 PM	69	273	26	368	5	34	28	67	35	166	5	206	34	46	44	124	765
05:15 PM	72	267	42	381	18	46	32	96	45	173	7	225	56	47	58	161	863
05:30 PM	68	280	40	388	10	33	35	78	35	191	3	229	50	59	38	147	842
05:45 PM	63	248	27	338	12	37	35	84	27	170	5	202	45	64	31	140	764
Total	272	1068	135	1475	45	150	130	325	142	700	20	862	185	216	171	572	3234
06:00 PM	82	265	24	371	7	43	43	93	37	177	2	216	34	48	32	114	794
06:15 PM	61	242	21	324	13	30	46	89	31	186	10	227	37	50	46	133	773
Grand Total	705	2840	316	3861	167	445	613	1225	408	3312	95	3815	518	513	391	1422	10323
Apprch %	18.3	73.6	8.2		13.6	36.3	50		10.7	86.8	2.5		36.4	36.1	27.5		
Total %	6.8	27.5	3.1	37.4	1.6	4.3	5.9	11.9	4	32.1	0.9	37	5	5	3.8	13.8	
1 - VEHICLES	705	2840	316	3													

Greater Traffic Company

File Name : 09
 Site Code : 00000009
 Start Date : 5/19/2009
 Page No : 2

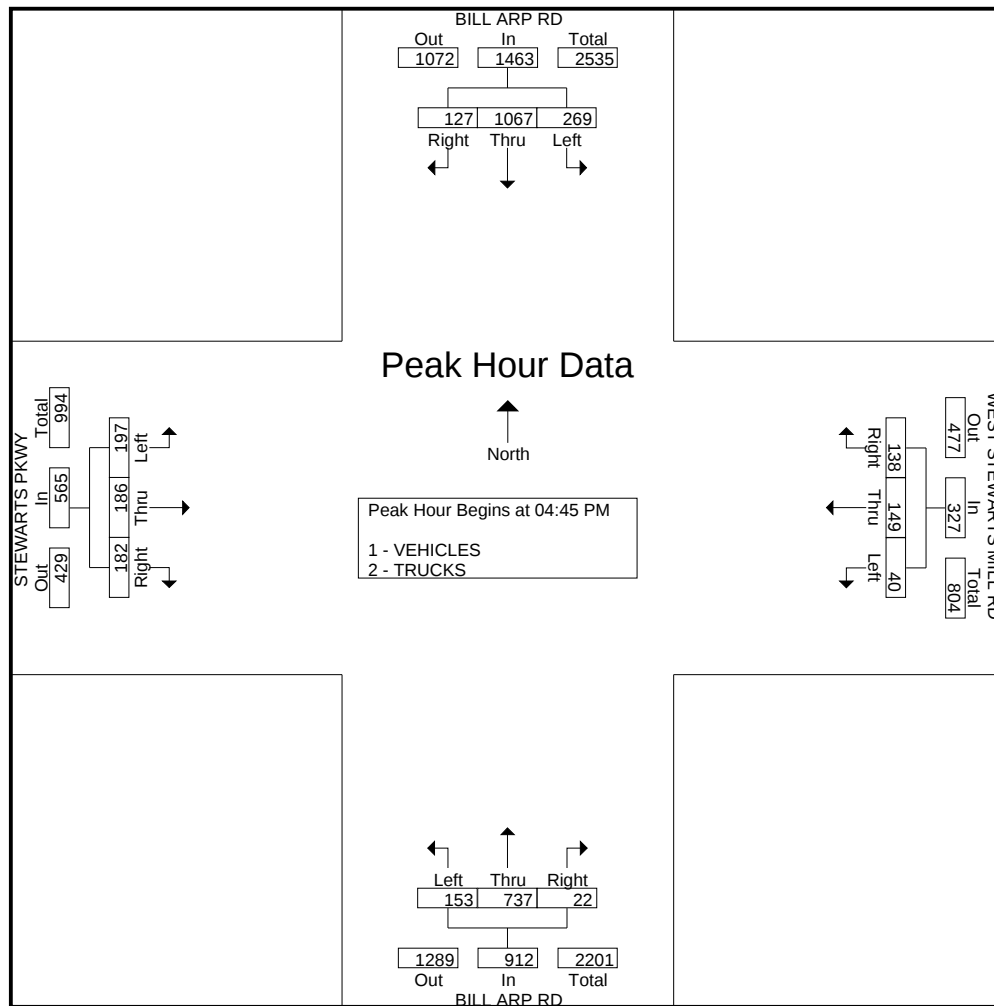
	BILL ARP RD Southbound				WEST STEWARTS MILL RD Westbound				BILL ARP RD Northbound				STEWARTS PKWY Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	23	102	6	131	7	17	43	67	13	255	4	272	22	24	6	52	522
07:45 AM	34	144	5	183	16	28	50	94	19	272	6	297	28	23	9	60	634
08:00 AM	38	150	23	211	12	31	45	88	30	257	7	294	30	25	9	64	657
08:15 AM	28	107	25	160	18	29	37	84	31	244	5	280	27	14	16	57	581
Total Volume	123	503	59	685	53	105	175	333	93	1028	22	1143	107	86	40	233	2394
% App. Total	18	73.4	8.6		15.9	31.5	52.6		8.1	89.9	1.9		45.9	36.9	17.2		
PHF	.809	.838	.590	.812	.736	.847	.875	.886	.750	.945	.786	.962	.892	.860	.625	.910	.911



Greater Traffic Company

File Name : 09
 Site Code : 00000009
 Start Date : 5/19/2009
 Page No : 3

	BILL ARP RD Southbound				WEST STEWARTS MILL RD Westbound				BILL ARP RD Northbound				STEWARTS PKWY Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	60	247	19	326	7	36	43	86	38	207	7	252	57	34	42	133	797
05:00 PM	69	273	26	368	5	34	28	67	35	166	5	206	34	46	44	124	765
05:15 PM	72	267	42	381	18	46	32	96	45	173	7	225	56	47	58	161	863
05:30 PM	68	280	40	388	10	33	35	78	35	191	3	229	50	59	38	147	842
Total Volume	269	1067	127	1463	40	149	138	327	153	737	22	912	197	186	182	565	3267
% App. Total	18.4	72.9	8.7		12.2	45.6	42.2		16.8	80.8	2.4		34.9	32.9	32.2		
PHF	.934	.953	.756	.943	.556	.810	.802	.852	.850	.890	.786	.905	.864	.788	.784	.877	.946



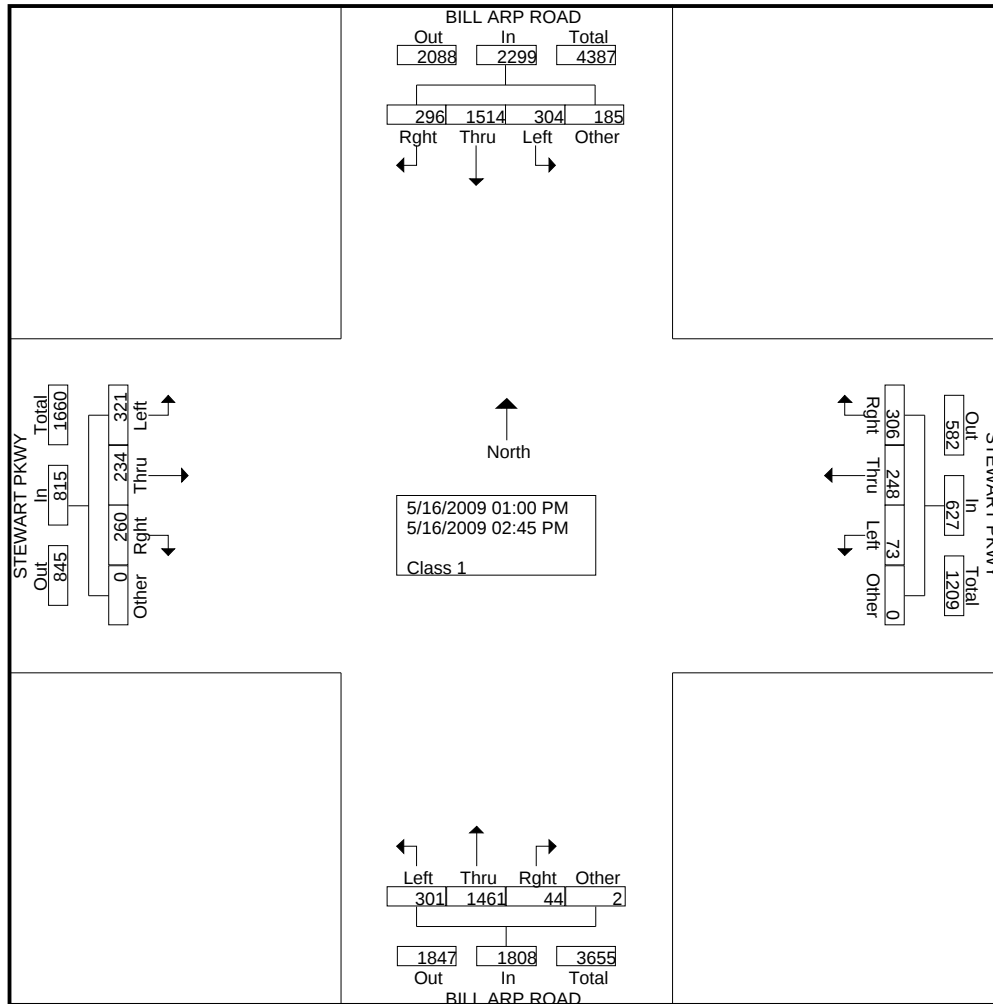
All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : BillArp@StewartPkwySat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 1

Groups Printed- Class 1

	BILL ARP ROAD Southbound					STEWART PKWY Westbound					BILL ARP ROAD Northbound					STEWART PKWY Eastbound					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
01:00 PM	30	197	39	23	289	38	36	11	0	85	5	193	24	0	222	13	31	40	0	84	680
01:15 PM	40	190	40	27	297	44	32	12	0	88	5	183	46	0	234	24	39	47	0	110	729
01:30 PM	42	179	36	26	283	34	26	8	0	68	3	168	40	1	212	27	19	46	0	92	655
01:45 PM	50	213	44	23	330	34	27	13	0	74	6	198	42	0	246	38	28	41	0	107	757
Total	162	779	159	99	1199	150	121	44	0	315	19	742	152	1	914	102	117	174	0	393	2821
02:00 PM	38	191	35	18	282	34	32	10	0	76	4	165	38	1	208	44	24	28	0	96	662
02:15 PM	32	169	33	23	257	35	38	7	0	80	5	167	29	0	201	43	29	32	0	104	642
02:30 PM	31	188	46	17	282	50	26	7	0	83	9	181	34	0	224	41	39	43	0	123	712
02:45 PM	33	187	31	28	279	37	31	5	0	73	7	206	48	0	261	30	25	44	0	99	712
Total	134	735	145	86	1100	156	127	29	0	312	25	719	149	1	894	158	117	147	0	422	2728
Grand Total	296	1514	304	185	2299	306	248	73	0	627	44	1461	301	2	1808	260	234	321	0	815	5549
Apprch %	12.9	65.9	13.2	8		48.8	39.6	11.6	0		2.4	80.8	16.6	0.1		31.9	28.7	39.4	0		
Total %	5.3	27.3	5.5	3.3	41.4	5.5	4.5	1.3	0	11.3	0.8	26.3	5.4	0	32.6	4.7	4.2	5.8	0	14.7	

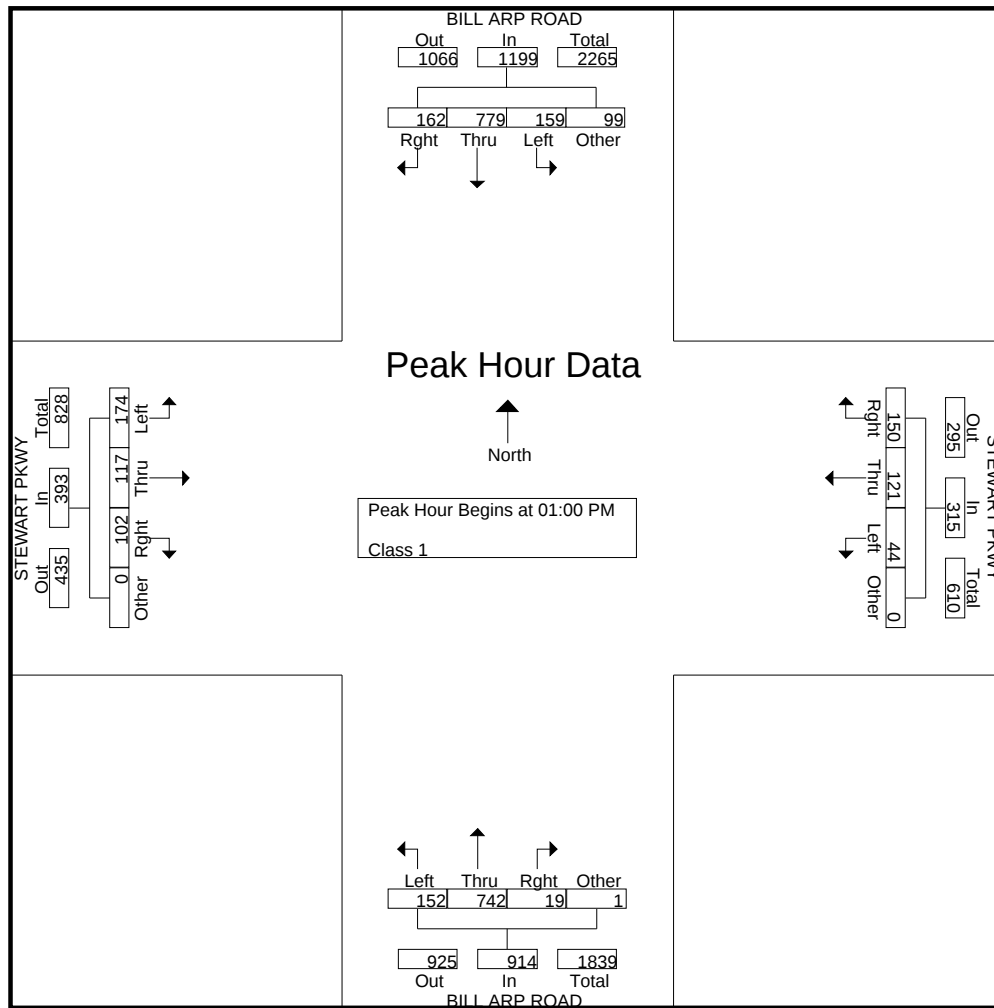


All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : BillArp@StewartPkwySat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 2

	BILL ARP ROAD Southbound					STEWART PKWY Westbound					BILL ARP ROAD Northbound					STEWART PKWY Eastbound					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 1:00:00 PM to 1:00:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 1:00:00 PM																					
1:00:00 PM	21	106	23	10	160	19	26	7	0	52	4	83	16	0	103	10	19	24	0	53	368
01:01 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:02 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:03 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	21	106	23	10	160	19	26	7	0	52	4	83	16	0	103	10	19	24	0	53	368
% App. Total	13.1	66.2	14.4	6.2		36.5	50	13.5	0		3.9	80.6	15.5	0		18.9	35.8	45.3	0		
PHF	.250	.250	.250	.250	.250	.250	.250	.250	.000	.250	.250	.250	.250	.000	.250	.250	.250	.250	.000	.250	.250



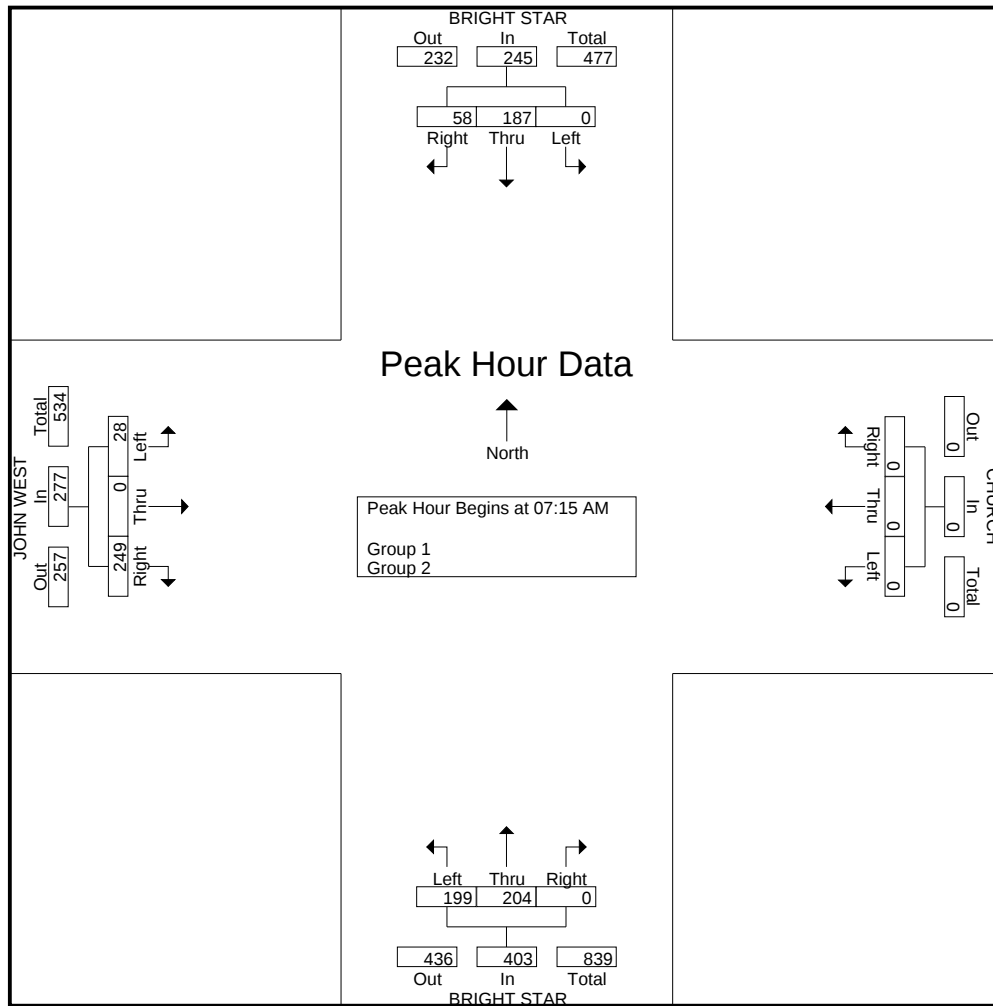
File Name : 11
Site Code : 00000011
Start Date : 5/19/2009
Page No : 1

	BRIGHT STAR Southbound				CHURCH Westbound				BRIGHT STAR Northbound				JOHN WEST Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	0	15	1	16	0	0	0	0	11	31	0	42	0	0	14	14	72
06:45 AM	0	39	4	43	0	0	0	0	6	35	0	41	4	0	22	26	110
Total	0	54	5	59	0	0	0	0	17	66	0	83	4	0	36	40	182
07:00 AM	0	35	11	46	0	0	0	0	21	41	0	62	7	0	20	27	135
07:15 AM	0	24	10	34	0	0	0	0	40	36	0	76	4	0	59	63	173
07:30 AM	0	51	23	74	0	0	0	0	59	54	0	113	6	0	70	76	263
07:45 AM	0	49	19	68	0	0	0	0	62	59	0	121	13	0	68	81	270
Total	0	159	63	222	0	0	0	0	182	190	0	372	30	0	217	247	841
08:00 AM	0	63	6	69	0	0	0	0	38	55	0	93	5	0	52	57	219
08:15 AM	0	55	4	59	0	0	0	0	19	61	0	80	3	0	31	34	173
*** BREAK ***																	
Total	0	118	10	128	0	0	0	0	57	116	0	173	8	0	83	91	392
*** BREAK ***																	
04:30 PM	0	77	3	80	0	0	0	0	54	83	0	137	4	0	50	54	271
04:45 PM	0	89	4	93	0	0	0	0	49	72	0	121	7	0	32	39	253
Total	0	166	7	173	0	0	0	0	103	155	0	258	11	0	82	93	524
05:00 PM	0	101	5	106	0	0	0	0	66	63	0	129	1	0	32	33	268
05:15 PM	0	113	8	121	0	0	0	0	48	55	0	103	7	0	39	46	270
05:30 PM	0	126	6	132	0	0	0	0	54	60	0	114	4	0	35	39	285
05:45 PM	0	109	6	115	0	0	0	0	49	68	0	117	4	0	40	44	276
Total	0	449	25	474	0	0	0	0	217	246	0	463	16	0	146	162	1099
06:00 PM	0	114	6	120	0	0	0	0	50	63	0	113	1	0	32	33	266
06:15 PM	0	100	2	102	0	0	0	0	59	52	0	111	1	0	16	17	230
Grand Total	0	1160	118	1278	0	0	0	0	685	888	0	1573	71	0	612	683	3534
Apprch %	0	90.8	9.2		0	0	0		43.5	56.5	0		10.4	0	89.6		
Total %	0	32.8	3.3	36.2	0	0	0	0	19.4	25.1	0	44.5	2	0	17.3	19.3	
Group 1	0	1160	118	1278	0	0	0	0	685	888	0	1573	71	0	612	683	3534
% Group 1	0	100	100	100	0	0	0	0	100								

Greater Traffic Company

File Name : 11
 Site Code : 00000011
 Start Date : 5/19/2009
 Page No : 2

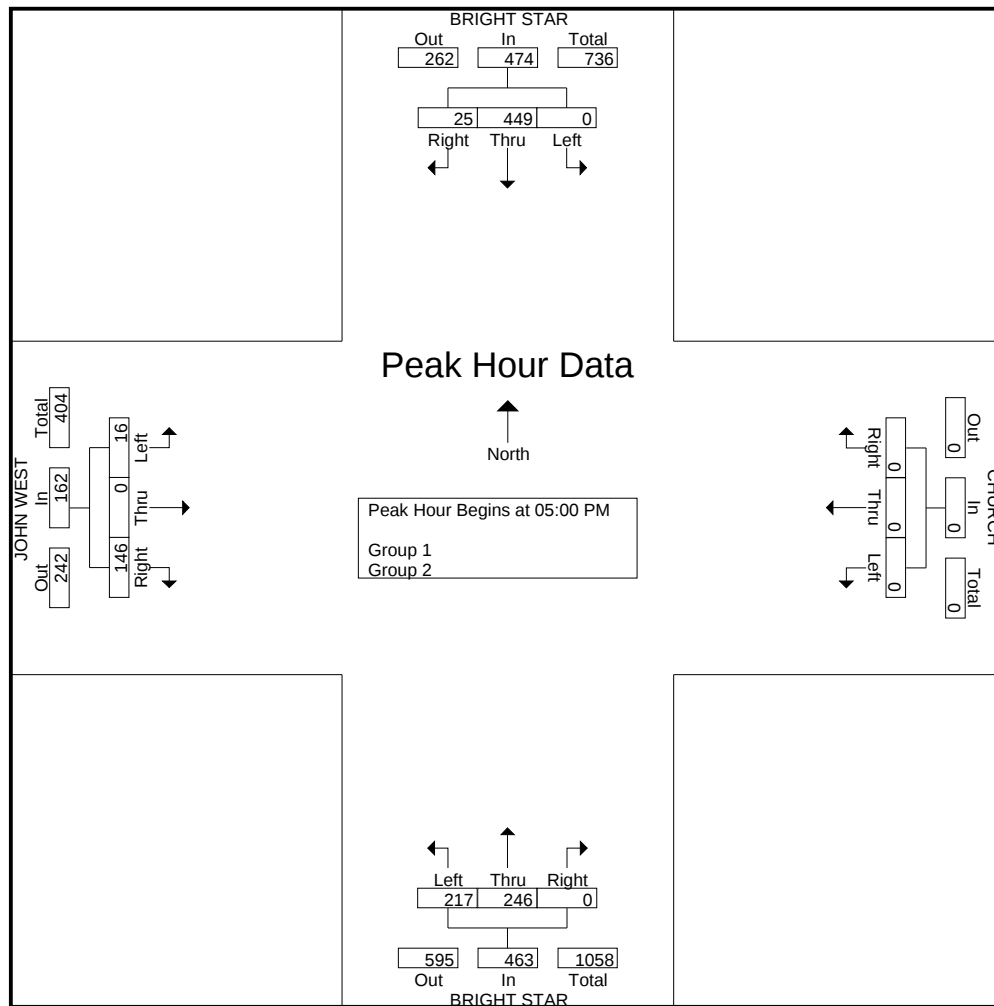
	BRIGHT STAR Southbound				CHURCH Westbound				BRIGHT STAR Northbound				JOHN WEST Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	24	10	34	0	0	0	0	40	36	0	76	4	0	59	63	173
07:30 AM	0	51	23	74	0	0	0	0	59	54	0	113	6	0	70	76	263
07:45 AM	0	49	19	68	0	0	0	0	62	59	0	121	13	0	68	81	270
08:00 AM	0	63	6	69	0	0	0	0	38	55	0	93	5	0	52	57	219
Total Volume	0	187	58	245	0	0	0	0	199	204	0	403	28	0	249	277	925
% App. Total	0	76.3	23.7		0	0	0		49.4	50.6	0		10.1	0	89.9		
PHF	.000	.742	.630	.828	.000	.000	.000	.000	.802	.864	.000	.833	.538	.000	.889	.855	.856



Greater Traffic Company

File Name : 11
 Site Code : 00000011
 Start Date : 5/19/2009
 Page No : 3

	BRIGHT STAR Southbound				CHURCH Westbound				BRIGHT STAR Northbound				JOHN WEST Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	101	5	106	0	0	0	0	66	63	0	129	1	0	32	33	268
05:15 PM	0	113	8	121	0	0	0	0	48	55	0	103	7	0	39	46	270
05:30 PM	0	126	6	132	0	0	0	0	54	60	0	114	4	0	35	39	285
05:45 PM	0	109	6	115	0	0	0	0	49	68	0	117	4	0	40	44	276
Total Volume	0	449	25	474	0	0	0	0	217	246	0	463	16	0	146	162	1099
% App. Total	0	94.7	5.3		0	0	0		46.9	53.1	0		9.9	0	90.1		
PHF	.000	.891	.781	.898	.000	.000	.000	.000	.822	.904	.000	.897	.571	.000	.913	.880	.964



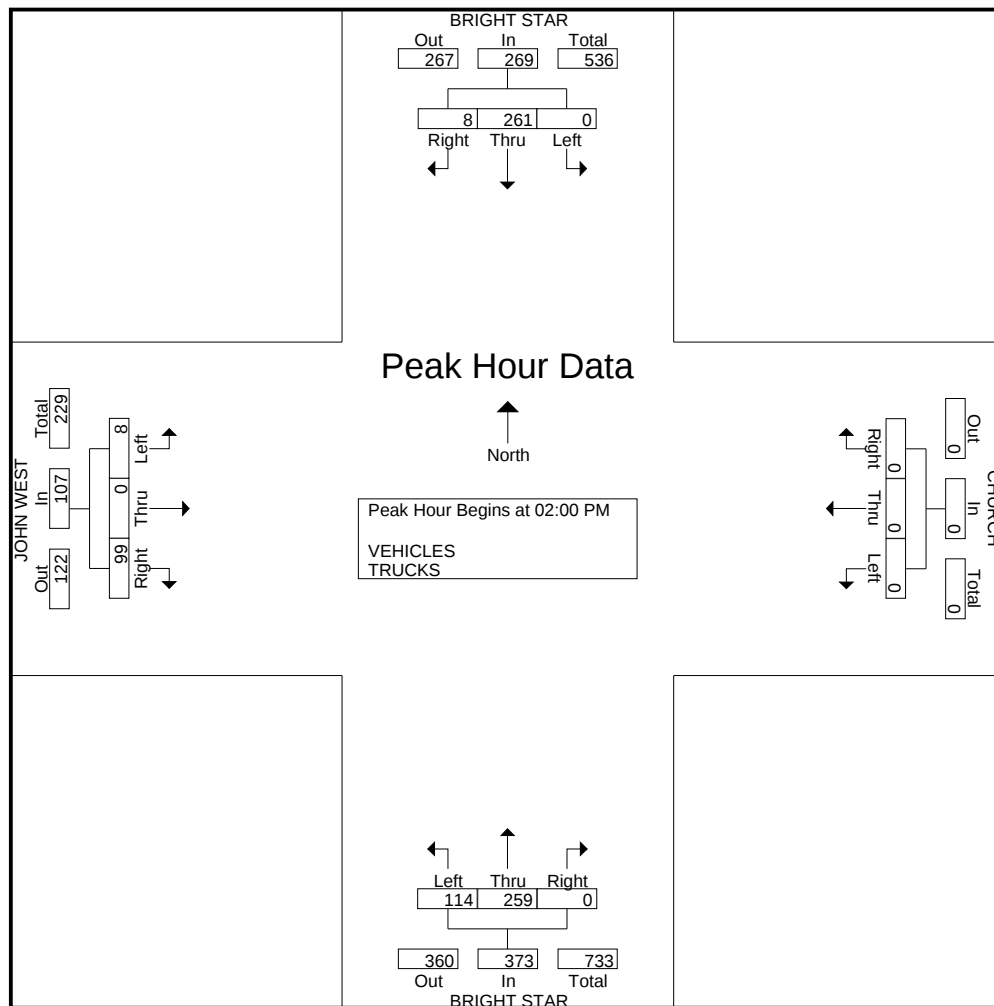
File Name : 11SAT
Site Code : 00000011
Start Date : 5/23/2009
Page No : 1

[illegible]

Greater Traffic Company

File Name : 11SAT
 Site Code : 00000011
 Start Date : 5/23/2009
 Page No : 2

	BRIGHT STAR Southbound				CHURCH Westbound				BRIGHT STAR Northbound				JOHN WEST Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	58	3	61	0	0	0	0	35	77	0	112	4	0	24	28	201
02:15 PM	0	65	1	66	0	0	0	0	33	61	0	94	1	0	30	31	191
02:30 PM	0	67	3	70	0	0	0	0	25	62	0	87	2	0	19	21	178
02:45 PM	0	71	1	72	0	0	0	0	21	59	0	80	1	0	26	27	179
Total Volume	0	261	8	269	0	0	0	0	114	259	0	373	8	0	99	107	749
% App. Total	0	97	3		0	0	0		30.6	69.4	0		7.5	0	92.5		
PHF	.000	.919	.667	.934	.000	.000	.000	.000	.814	.841	.000	.833	.500	.000	.825	.863	.932



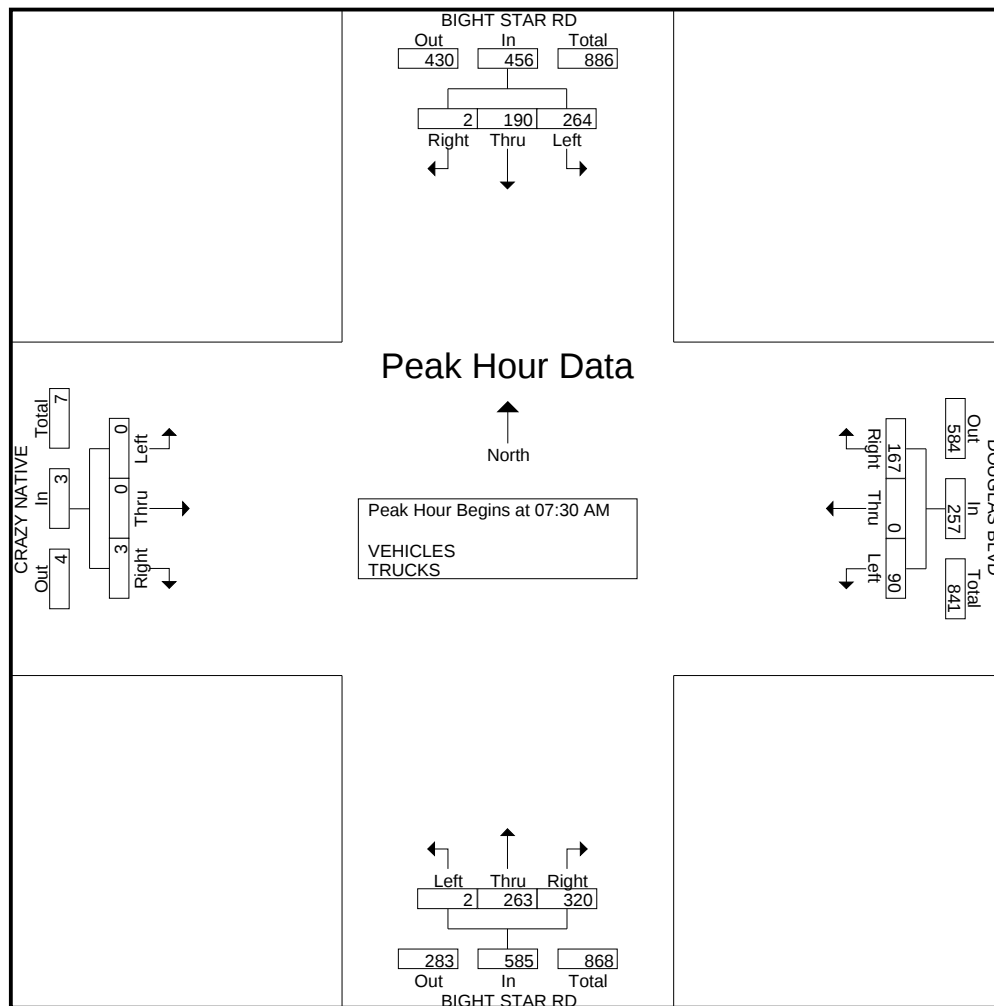
File Name : 12
Site Code : 00000012
Start Date : 5/19/2009
Page No : 1

	BIGHT STAR RD Southbound				DOUGLAS BLVD Westbound				BIGHT STAR RD Northbound				CRAZY NATIVE Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	19	14	0	33	3	0	10	13	0	36	42	78	0	0	0	0	124
06:45 AM	26	39	0	65	6	0	12	18	0	33	41	74	0	0	0	0	157
Total	45	53	0	98	9	0	22	31	0	69	83	152	0	0	0	0	281
07:00 AM	28	29	0	57	12	0	15	27	0	42	57	99	0	0	0	0	183
07:15 AM	47	35	1	83	19	1	20	40	0	57	55	112	0	0	0	0	235
07:30 AM	63	64	1	128	16	0	46	62	0	73	80	153	0	0	0	0	343
07:45 AM	76	49	1	126	18	0	58	76	0	70	86	156	0	0	0	0	358
Total	214	177	3	394	65	1	139	205	0	242	278	520	0	0	0	0	1119
08:00 AM	79	42	0	121	27	0	38	65	2	61	91	154	0	0	2	2	342
08:15 AM	46	35	0	81	29	0	25	54	0	59	63	122	0	0	1	1	258
*** BREAK ***																	
Total	125	77	0	202	56	0	63	119	2	120	154	276	0	0	3	3	600
*** BREAK ***																	
04:30 PM	76	56	0	132	67	0	78	145	0	63	47	110	0	1	0	1	388
04:45 PM	59	64	0	123	68	1	66	135	1	49	57	107	0	1	0	1	366
Total	135	120	0	255	135	1	144	280	1	112	104	217	0	2	0	2	754
05:00 PM	78	60	1	139	66	1	77	144	1	40	54	95	1	0	0	1	379
05:15 PM	68	79	1	148	66	1	60	127	1	37	50	88	0	2	0	2	365
05:30 PM	90	80	0	170	71	1	62	134	1	56	60	117	2	0	1	3	424
05:45 PM	73	71	0	144	63	1	68	132	0	54	69	123	0	0	1	1	400
Total	309	290	2	601	266	4	267	537	3	187	233	423	3	2	2	7	1568
06:00 PM	77	83	1	161	69	0	63	132	2	44	64	110	0	1	0	1	404
06:15 PM	45	61	0	106	74	3	67	144	0	51	67	118	0	1	2	3	371
Grand Total	950	861	6	1817	674	9	765	1448	8	825	983	1816	3	6	7	16	5097
Apprch %	52.3	47.4	0.3		46.5	0.6	52.8		0.4	45.4	54.1		18.8	37.5	43.8		
Total %	18.6	16.9	0.1	35.6	13.2	0.2	15	28.4	0.2	16.2	19.3	35.6	0.1	0.1	0.1	0.3	
VEHICLES	950	861	6	1817	674	9	765	1448	8	825	983</						

Greater Traffic Company

File Name : 12
 Site Code : 00000012
 Start Date : 5/19/2009
 Page No : 2

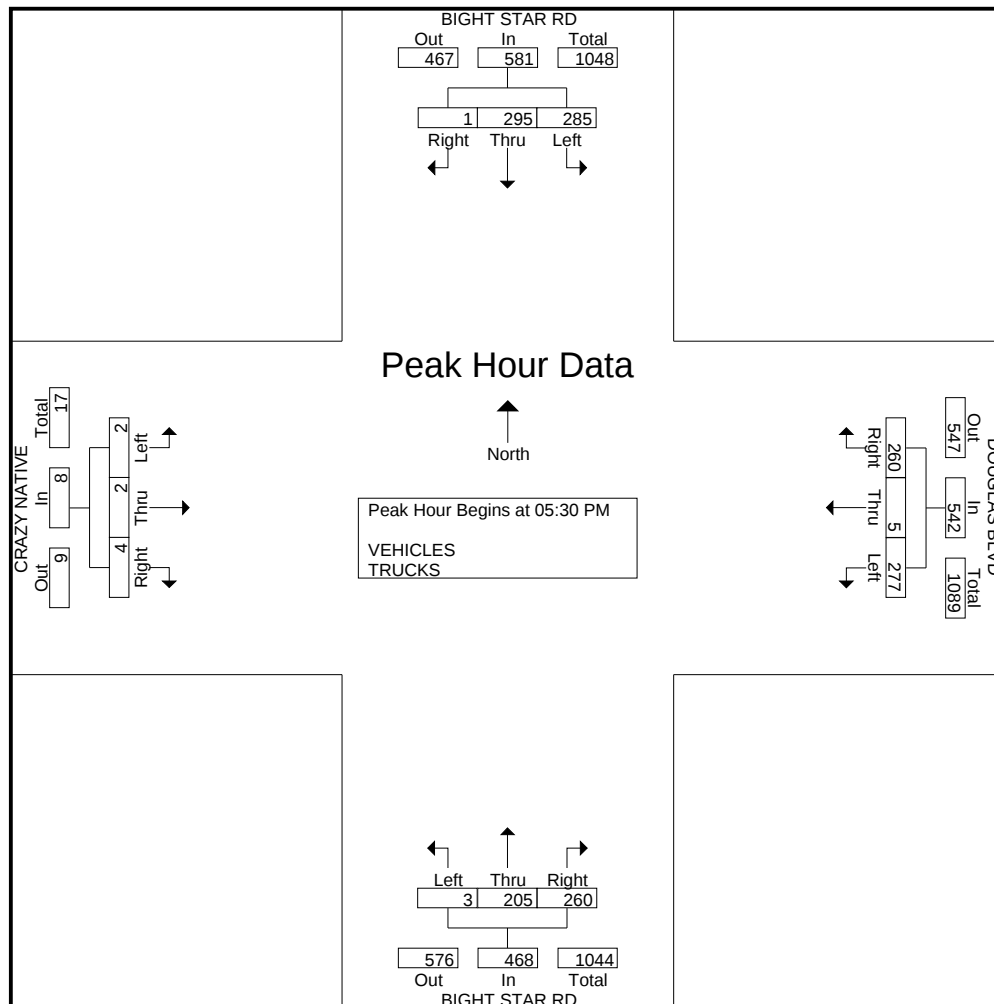
	BIGHT STAR RD Southbound				DOUGLAS BLVD Westbound				BIGHT STAR RD Northbound				CRAZY NATIVE Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	63	64	1	128	16	0	46	62	0	73	80	153	0	0	0	0	343
07:45 AM	76	49	1	126	18	0	58	76	0	70	86	156	0	0	0	0	358
08:00 AM	79	42	0	121	27	0	38	65	2	61	91	154	0	0	2	2	342
08:15 AM	46	35	0	81	29	0	25	54	0	59	63	122	0	0	1	1	258
Total Volume	264	190	2	456	90	0	167	257	2	263	320	585	0	0	3	3	1301
% App. Total	57.9	41.7	0.4		35	0	65		0.3	45	54.7		0	0	100		
PHF	.835	.742	.500	.891	.776	.000	.720	.845	.250	.901	.879	.938	.000	.000	.375	.375	.909



Greater Traffic Company

File Name : 12
 Site Code : 00000012
 Start Date : 5/19/2009
 Page No : 3

	BIGHT STAR RD Southbound				DOUGLAS BLVD Westbound				BIGHT STAR RD Northbound				CRAZY NATIVE Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:30 PM																	
05:30 PM	90	80	0	170	71	1	62	134	1	56	60	117	2	0	1	3	424
05:45 PM	73	71	0	144	63	1	68	132	0	54	69	123	0	0	1	1	400
06:00 PM	77	83	1	161	69	0	63	132	2	44	64	110	0	1	0	1	404
06:15 PM	45	61	0	106	74	3	67	144	0	51	67	118	0	1	2	3	371
Total Volume	285	295	1	581	277	5	260	542	3	205	260	468	2	2	4	8	1599
% App. Total	49.1	50.8	0.2		51.1	0.9	48		0.6	43.8	55.6		25	25	50		
PHF	.792	.889	.250	.854	.936	.417	.956	.941	.375	.915	.942	.951	.250	.500	.500	.667	.943



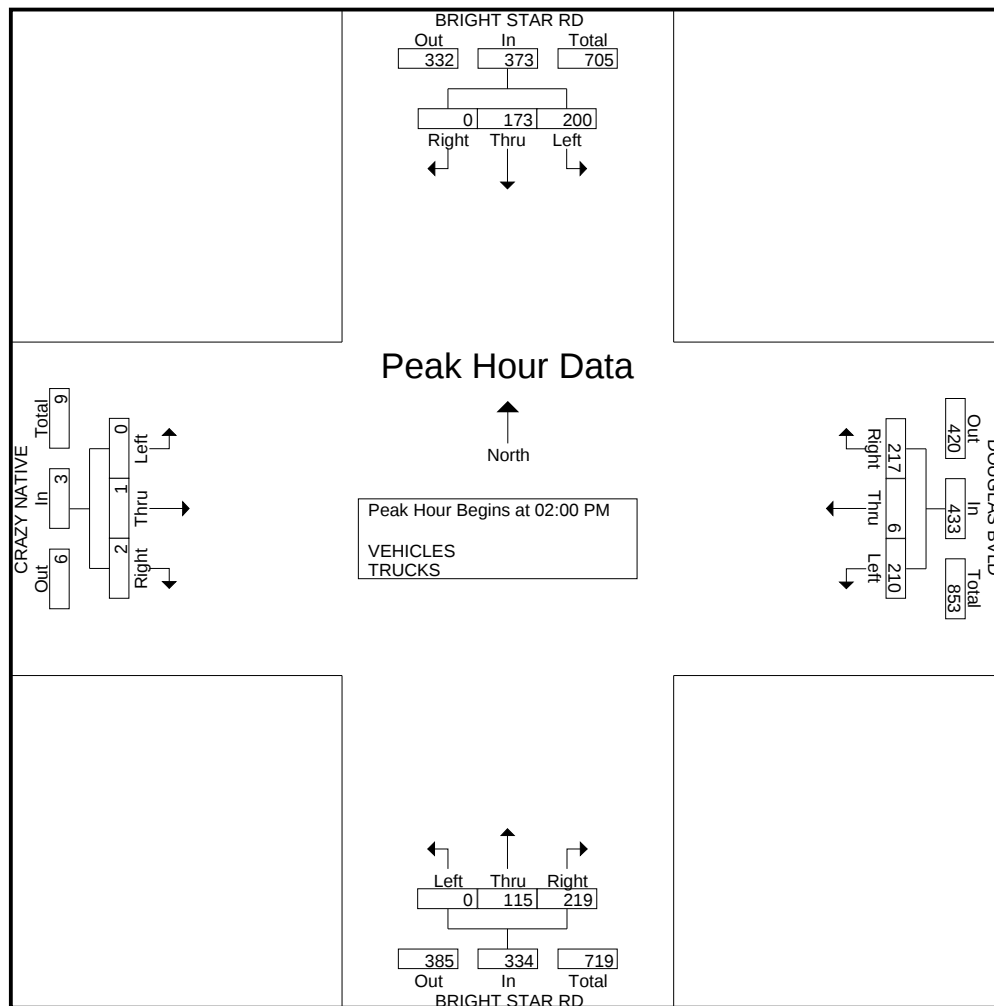
File Name : 12SAT
Site Code : 00001212
Start Date : 5/16/2009
Page No : 1

[illegible]

Greater Traffic Company

File Name : 12SAT
 Site Code : 00001212
 Start Date : 5/16/2009
 Page No : 2

	BRIGHT STAR RD Southbound				DOUGLAS BVD Westbound				BRIGHT STAR RD Northbound				CRAZY NATIVE Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	42	43	0	85	41	2	67	110	0	33	51	84	0	1	1	2	281
02:15 PM	57	38	0	95	65	3	52	120	0	28	57	85	0	0	1	1	301
02:30 PM	45	44	0	89	57	0	45	102	0	29	54	83	0	0	0	0	274
02:45 PM	56	48	0	104	47	1	53	101	0	25	57	82	0	0	0	0	287
Total Volume	200	173	0	373	210	6	217	433	0	115	219	334	0	1	2	3	1143
% App. Total	53.6	46.4	0		48.5	1.4	50.1		0	34.4	65.6		0	33.3	66.7		
PHF	.877	.901	.000	.897	.808	.500	.810	.902	.000	.871	.961	.982	.000	.250	.500	.375	.949



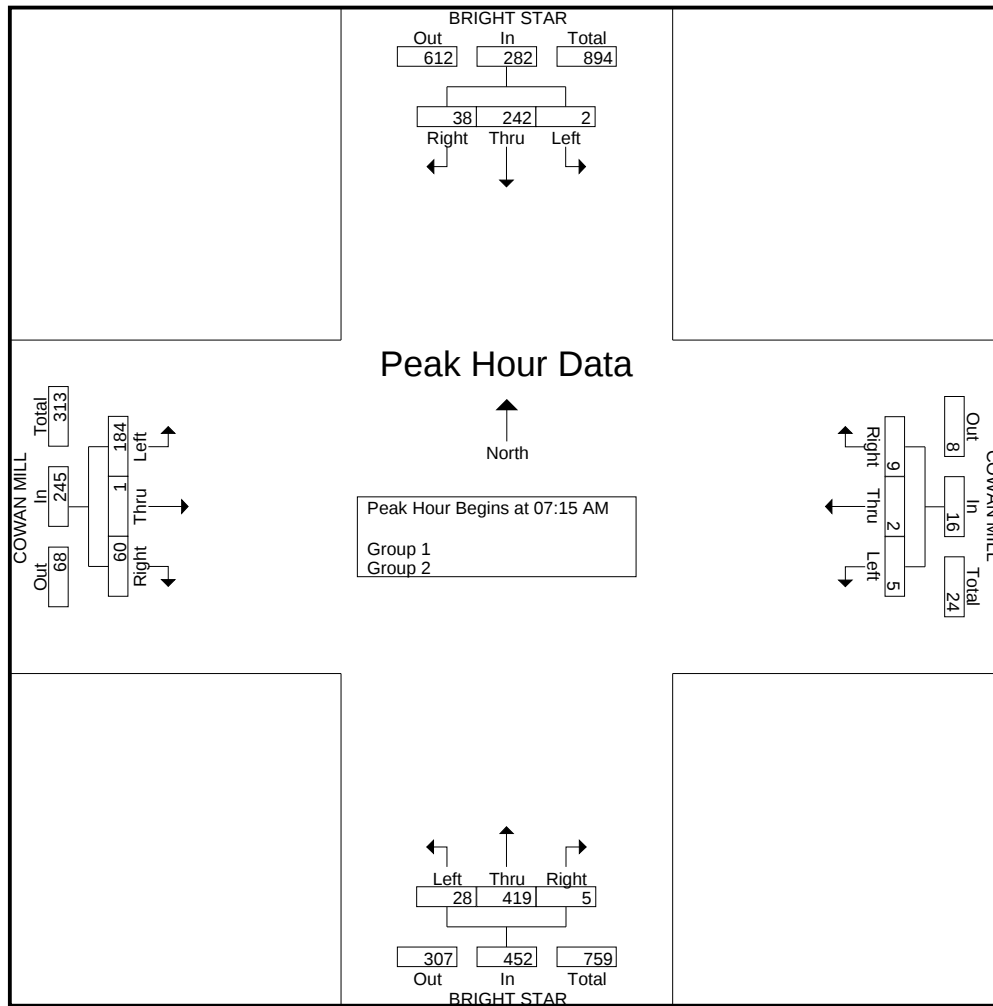
File Name : 13
Site Code : 00000013
Start Date : 5/14/2009
Page No : 1

	BRIGHT STAR Southbound				COWAN MILL Westbound				BRIGHT STAR Northbound				COWAN MILL Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	0	13	3	16	2	1	3	6	6	57	0	63	22	0	8	30	115
06:45 AM	0	30	7	37	1	1	1	3	3	50	0	53	19	0	4	23	116
Total	0	43	10	53	3	2	4	9	9	107	0	116	41	0	12	53	231
07:00 AM	1	29	6	36	2	1	1	4	1	75	0	76	24	0	9	33	149
07:15 AM	2	43	11	56	1	0	3	4	3	80	2	85	41	0	15	56	201
07:30 AM	0	65	6	71	1	1	4	6	6	114	0	120	45	0	13	58	255
07:45 AM	0	59	15	74	1	1	2	4	11	109	0	120	57	1	20	78	276
Total	3	196	38	237	5	3	10	18	21	378	2	401	167	1	57	225	881
08:00 AM	0	75	6	81	2	0	0	2	8	116	3	127	41	0	12	53	263
08:15 AM	1	49	10	60	0	2	1	3	2	79	0	81	30	0	6	36	180
*** BREAK ***																	
Total	1	124	16	141	2	2	1	5	10	195	3	208	71	0	18	89	443
*** BREAK ***																	
04:30 PM	2	78	30	110	2	1	3	6	15	91	2	108	28	2	8	38	262
04:45 PM	2	91	29	122	3	1	2	6	14	88	1	103	23	0	8	31	262
Total	4	169	59	232	5	2	5	12	29	179	3	211	51	2	16	69	524
05:00 PM	6	92	33	131	3	0	2	5	16	80	1	97	31	0	12	43	276
05:15 PM	4	110	39	153	2	0	1	3	16	69	1	86	29	2	9	40	282
05:30 PM	1	117	30	148	1	2	0	3	16	90	1	107	21	2	9	32	290
05:45 PM	0	93	41	134	0	1	6	7	14	80	2	96	29	2	23	54	291
Total	11	412	143	566	6	3	9	18	62	319	5	386	110	6	53	169	1139
06:00 PM	0	109	34	143	0	1	2	3	25	71	2	98	28	0	12	40	284
06:15 PM	3	98	37	138	5	3	0	8	12	80	0	92	30	1	18	49	287
Grand Total	22	1151	337	1510	26	16	31	73	168	1329	15	1512	498	10	186	694	3789
Apprch %	1.5	76.2	22.3		35.6	21.9	42.5		11.1	87.9	1		71.8	1.4	26.8		
Total %	0.6	30.4	8.9	39.9	0.7	0.4	0.8	1.9	4.4	35.1	0.4	39.9	13.1	0.3	4.9	18.3	
Group 1	22	1151	337	1510	26	16	31	73	168	1329	15	1512	498	10	186	694	3789
% Group																	

Greater Traffic Company

File Name : 13
 Site Code : 00000013
 Start Date : 5/14/2009
 Page No : 2

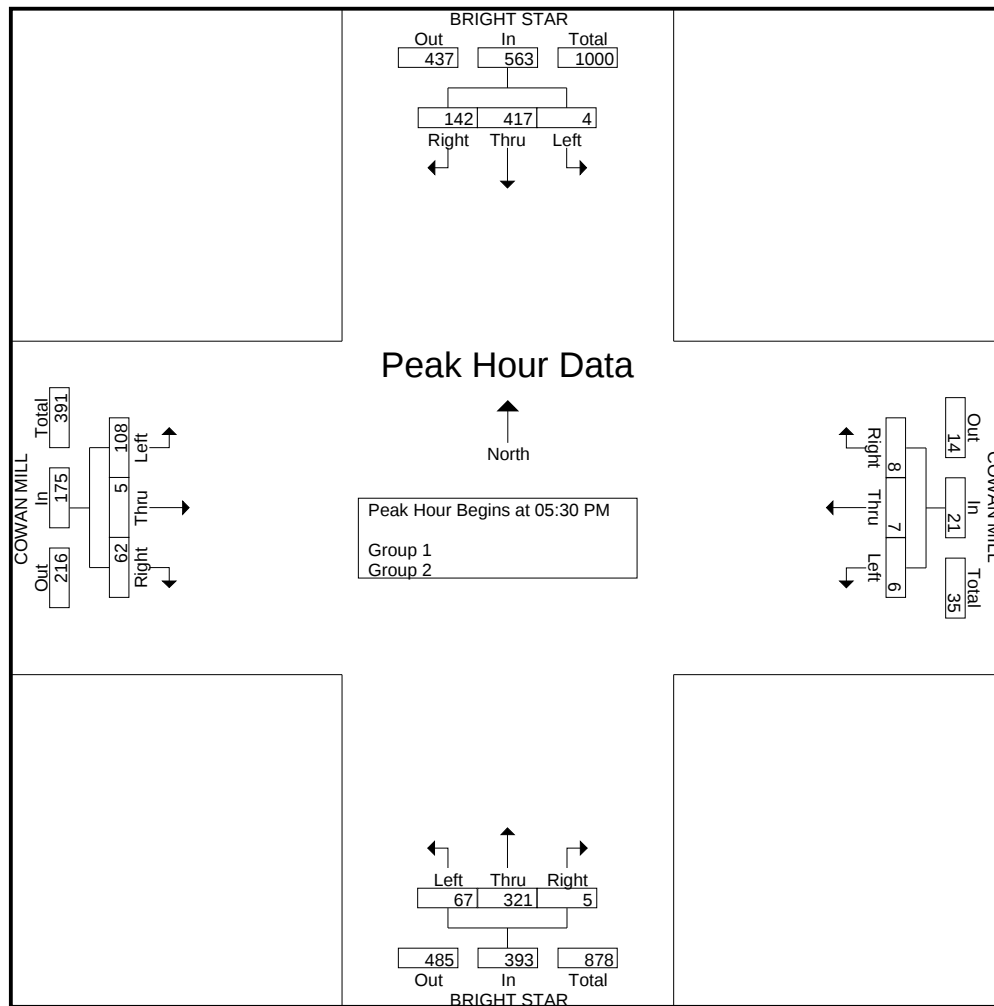
	BRIGHT STAR Southbound				COWAN MILL Westbound				BRIGHT STAR Northbound				COWAN MILL Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	2	43	11	56	1	0	3	4	3	80	2	85	41	0	15	56	201
07:30 AM	0	65	6	71	1	1	4	6	6	114	0	120	45	0	13	58	255
07:45 AM	0	59	15	74	1	1	2	4	11	109	0	120	57	1	20	78	276
08:00 AM	0	75	6	81	2	0	0	2	8	116	3	127	41	0	12	53	263
Total Volume	2	242	38	282	5	2	9	16	28	419	5	452	184	1	60	245	995
% App. Total	0.7	85.8	13.5		31.2	12.5	56.2		6.2	92.7	1.1		75.1	0.4	24.5		
PHF	.250	.807	.633	.870	.625	.500	.563	.667	.636	.903	.417	.890	.807	.250	.750	.785	.901



Greater Traffic Company

File Name : 13
 Site Code : 00000013
 Start Date : 5/14/2009
 Page No : 3

	BRIGHT STAR Southbound				COWAN MILL Westbound				BRIGHT STAR Northbound				COWAN MILL Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:30 PM																	
05:30 PM	1	117	30	148	1	2	0	3	16	90	1	107	21	2	9	32	290
05:45 PM	0	93	41	134	0	1	6	7	14	80	2	96	29	2	23	54	291
06:00 PM	0	109	34	143	0	1	2	3	25	71	2	98	28	0	12	40	284
06:15 PM	3	98	37	138	5	3	0	8	12	80	0	92	30	1	18	49	287
Total Volume	4	417	142	563	6	7	8	21	67	321	5	393	108	5	62	175	1152
% App. Total	0.7	74.1	25.2		28.6	33.3	38.1		17	81.7	1.3		61.7	2.9	35.4		
PHF	.333	.891	.866	.951	.300	.583	.333	.656	.670	.892	.625	.918	.900	.625	.674	.810	.990



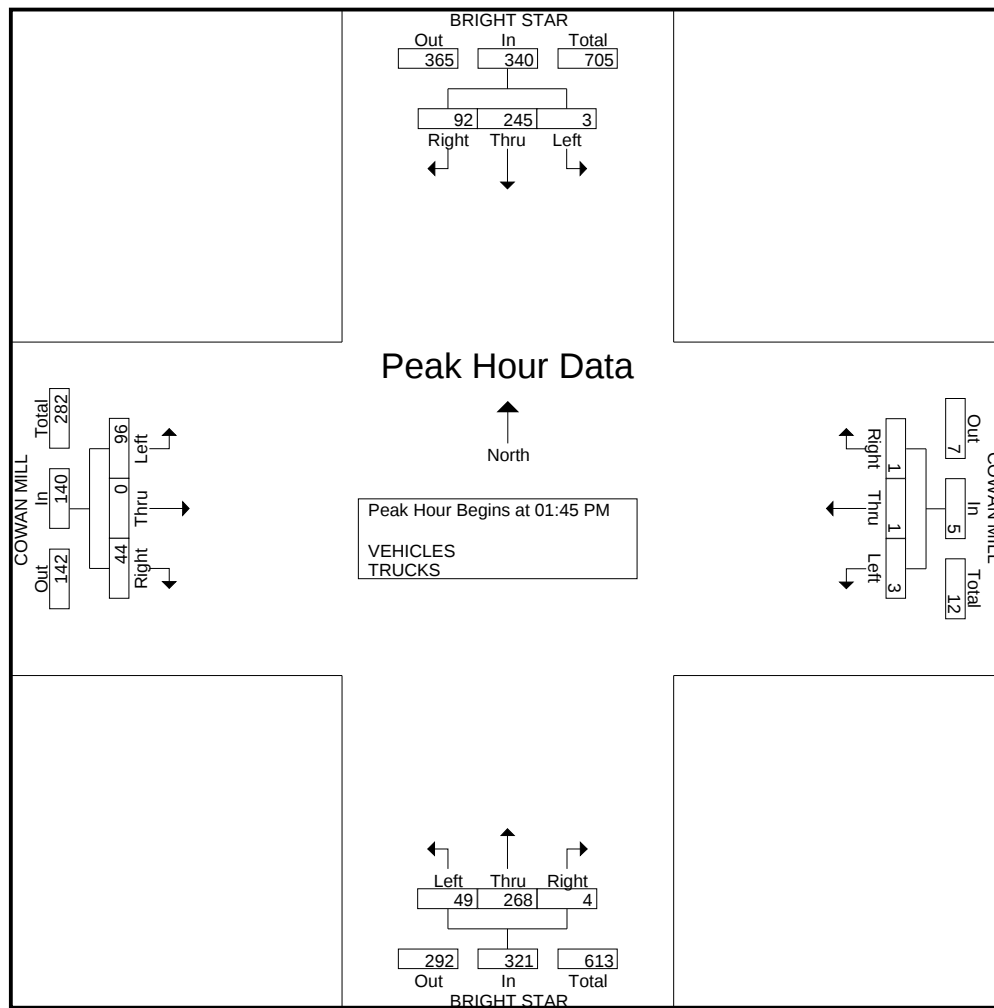
File Name : 13SAT
Site Code : 00000013
Start Date : 5/16/2009
Page No : 1

[illegible]

Greater Traffic Company

File Name : 13SAT
 Site Code : 00000013
 Start Date : 5/16/2009
 Page No : 2

	BRIGHT STAR Southbound				COWAN MILL Westbound				BRIGHT STAR Northbound				COWAN MILL Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:45 PM																	
01:45 PM	1	59	23	83	0	1	1	2	8	70	1	79	30	0	9	39	203
02:00 PM	1	52	18	71	2	0	0	2	14	70	1	85	18	0	12	30	188
02:15 PM	0	57	26	83	0	0	0	0	14	69	1	84	21	0	12	33	200
02:30 PM	1	77	25	103	1	0	0	1	13	59	1	73	27	0	11	38	215
Total Volume	3	245	92	340	3	1	1	5	49	268	4	321	96	0	44	140	806
% App. Total	0.9	72.1	27.1		60	20	20		15.3	83.5	1.2		68.6	0	31.4		
PHF	.750	.795	.885	.825	.375	.250	.250	.625	.875	.957	1.000	.944	.800	.000	.917	.897	.937



Greater Traffic Company

File Name : 14
 Site Code : 00000014
 Start Date : 5/14/2009
 Page No : 1

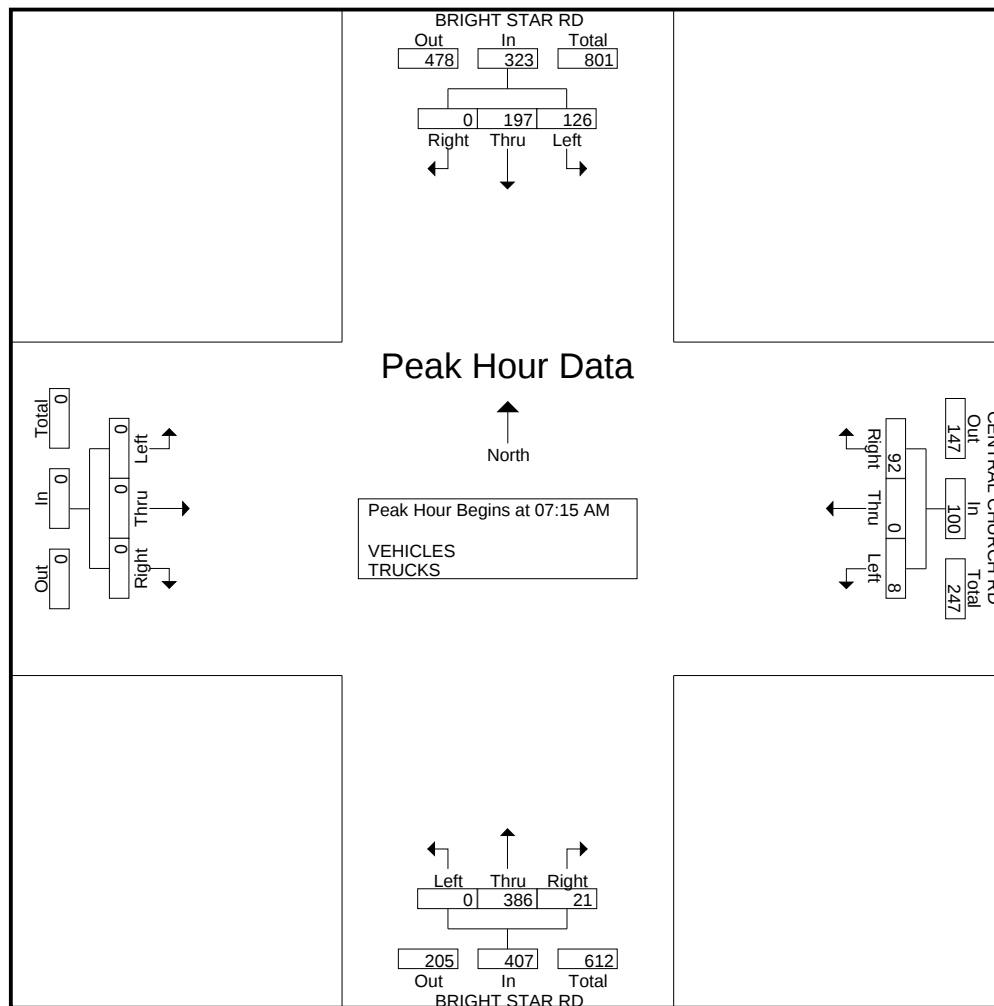
Groups Printed- VEHICLES - TRUCKS

	BRIGHT STAR RD Southbound				CENTRAL CHURCH RD Westbound				BRIGHT STAR RD Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	10	12	0	22	0	0	18	18	0	37	2	39	0	0	0	0	79
06:45 AM	13	23	0	36	1	0	22	23	0	44	6	50	0	0	0	0	109
Total	23	35	0	58	1	0	40	41	0	81	8	89	0	0	0	0	188
07:00 AM	13	27	0	40	2	0	15	17	0	67	1	68	0	0	0	0	125
07:15 AM	22	43	0	65	3	0	21	24	0	64	3	67	0	0	0	0	156
07:30 AM	29	53	0	82	4	0	25	29	0	104	7	111	0	0	0	0	222
07:45 AM	31	48	0	79	0	0	18	18	0	109	7	116	0	0	0	0	213
Total	95	171	0	266	9	0	79	88	0	344	18	362	0	0	0	0	716
08:00 AM	44	53	0	97	1	0	28	29	0	109	4	113	0	0	0	0	239
08:15 AM	24	36	0	60	2	0	19	21	0	69	6	75	0	0	0	0	156
*** BREAK ***																	
Total	68	89	0	157	3	0	47	50	0	178	10	188	0	0	0	0	395
*** BREAK ***																	
04:30 PM	26	72	0	98	11	0	37	48	0	69	2	71	0	0	0	0	217
04:45 PM	39	79	0	118	4	0	37	41	0	75	4	79	0	0	0	0	238
Total	65	151	0	216	15	0	74	89	0	144	6	150	0	0	0	0	455
05:00 PM	37	77	0	114	2	0	46	48	0	60	10	70	0	0	0	0	232
05:15 PM	39	89	0	128	3	0	30	33	0	57	9	66	0	0	0	0	227
05:30 PM	33	106	0	139	3	0	42	45	0	71	13	84	0	0	0	0	268
05:45 PM	49	72	0	121	5	0	36	41	0	61	6	67	0	0	0	0	229
Total	158	344	0	502	13	0	154	167	0	249	38	287	0	0	0	0	956
06:00 PM	46	80	0	126	4	0	29	33	0	75	14	89	0	0	0	0	248
06:15 PM	44	81	0	125	4	0	23	27	0	70	12	82	0	0	0	0	234
Grand Total	499	951	0	1450	49	0	446	495	0	1141	106	1247	0	0	0	0	3192
Apprch %	34.4	65.6	0		9.9	0	90.1		0	91.5	8.5		0	0	0		
Total %	15.6	29.8	0	45.4	1.5	0	14	15.5	0	35.7	3.3	39.1	0	0	0	0	
VEHICLES	494	950	0	1444	49	0	443	492	0	1137	104	1241	0	0	0	0	3177
% VEHICLES	99	99.9	0	99.6	100	0	99.3	99.4	0	99.6	98.1	99.5	0	0	0	0	99.5
TRUCKS	5	1	0	6	0	0	3	3	0	4	2	6	0	0	0	0	15
% TRUCKS	1	0.1	0	0.4	0	0	0.7	0.6	0	0.4	1.9	0.5	0	0	0	0	0.5

Greater Traffic Company

File Name : 14
 Site Code : 00000014
 Start Date : 5/14/2009
 Page No : 2

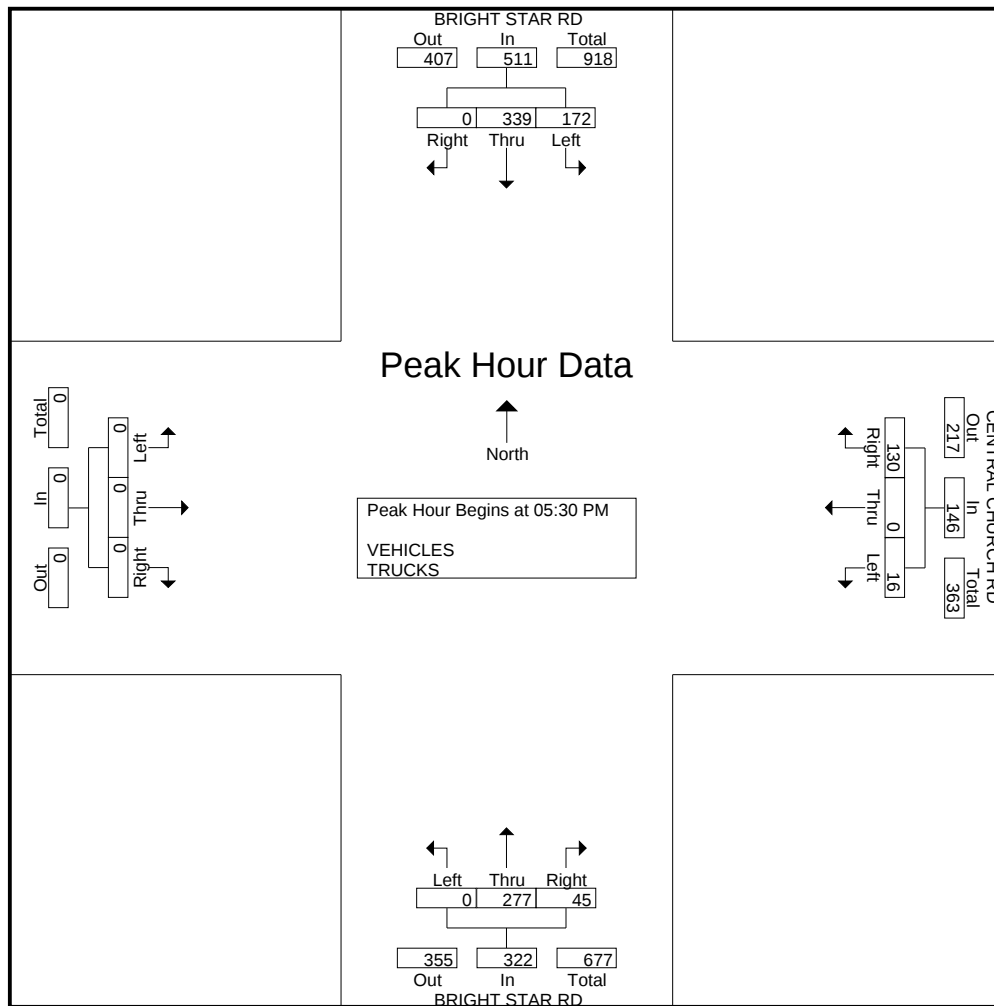
	BRIGHT STAR RD Southbound				CENTRAL CHURCH RD Westbound				BRIGHT STAR RD Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	22	43	0	65	3	0	21	24	0	64	3	67	0	0	0	0	156
07:30 AM	29	53	0	82	4	0	25	29	0	104	7	111	0	0	0	0	222
07:45 AM	31	48	0	79	0	0	18	18	0	109	7	116	0	0	0	0	213
08:00 AM	44	53	0	97	1	0	28	29	0	109	4	113	0	0	0	0	239
Total Volume	126	197	0	323	8	0	92	100	0	386	21	407	0	0	0	0	830
% App. Total	39	61	0		8	0	92		0	94.8	5.2		0	0	0		
PHF	.716	.929	.000	.832	.500	.000	.821	.862	.000	.885	.750	.877	.000	.000	.000	.000	.868



Greater Traffic Company

File Name : 14
 Site Code : 00000014
 Start Date : 5/14/2009
 Page No : 3

	BRIGHT STAR RD Southbound				CENTRAL CHURCH RD Westbound				BRIGHT STAR RD Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:30 PM																	
05:30 PM	33	106	0	139	3	0	42	45	0	71	13	84	0	0	0	0	268
05:45 PM	49	72	0	121	5	0	36	41	0	61	6	67	0	0	0	0	229
06:00 PM	46	80	0	126	4	0	29	33	0	75	14	89	0	0	0	0	248
06:15 PM	44	81	0	125	4	0	23	27	0	70	12	82	0	0	0	0	234
Total Volume	172	339	0	511	16	0	130	146	0	277	45	322	0	0	0	0	979
% App. Total	33.7	66.3	0		11	0	89		0	86	14		0	0	0		
PHF	.878	.800	.000	.919	.800	.000	.774	.811	.000	.923	.804	.904	.000	.000	.000	.000	.913



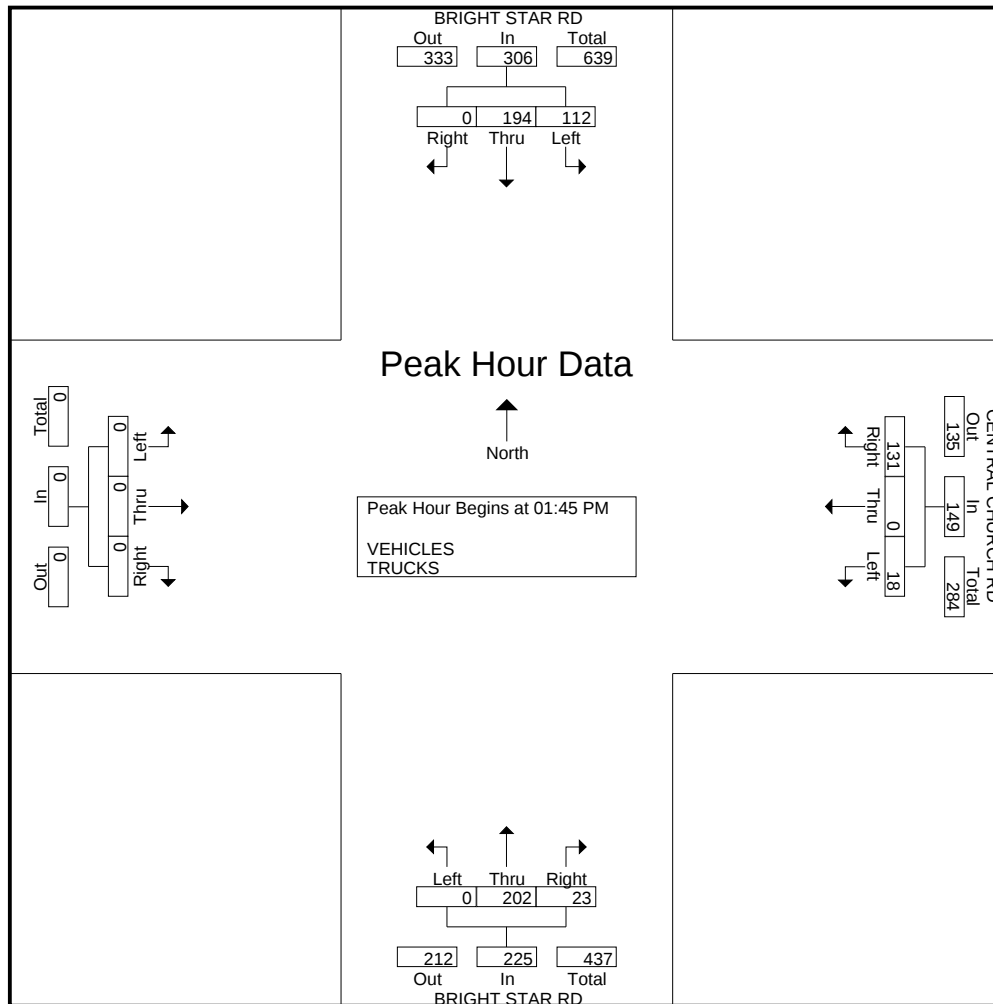
File Name : 14SAT
Site Code : 00000014
Start Date : 5/16/2009
Page No : 1

[illegible]

Greater Traffic Company

File Name : 14SAT
 Site Code : 00000014
 Start Date : 5/16/2009
 Page No : 2

	BRIGHT STAR RD Southbound				CENTRAL CHURCH RD Westbound				BRIGHT STAR RD Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:45 PM																	
01:45 PM	27	44	0	71	4	0	30	34	0	50	5	55	0	0	0	0	160
02:00 PM	27	41	0	68	6	0	32	38	0	59	7	66	0	0	0	0	172
02:15 PM	25	50	0	75	4	0	42	46	0	46	6	52	0	0	0	0	173
02:30 PM	33	59	0	92	4	0	27	31	0	47	5	52	0	0	0	0	175
Total Volume	112	194	0	306	18	0	131	149	0	202	23	225	0	0	0	0	680
% App. Total	36.6	63.4	0		12.1	0	87.9		0	89.8	10.2		0	0	0		
PHF	.848	.822	.000	.832	.750	.000	.780	.810	.000	.856	.821	.852	.000	.000	.000	.000	.971



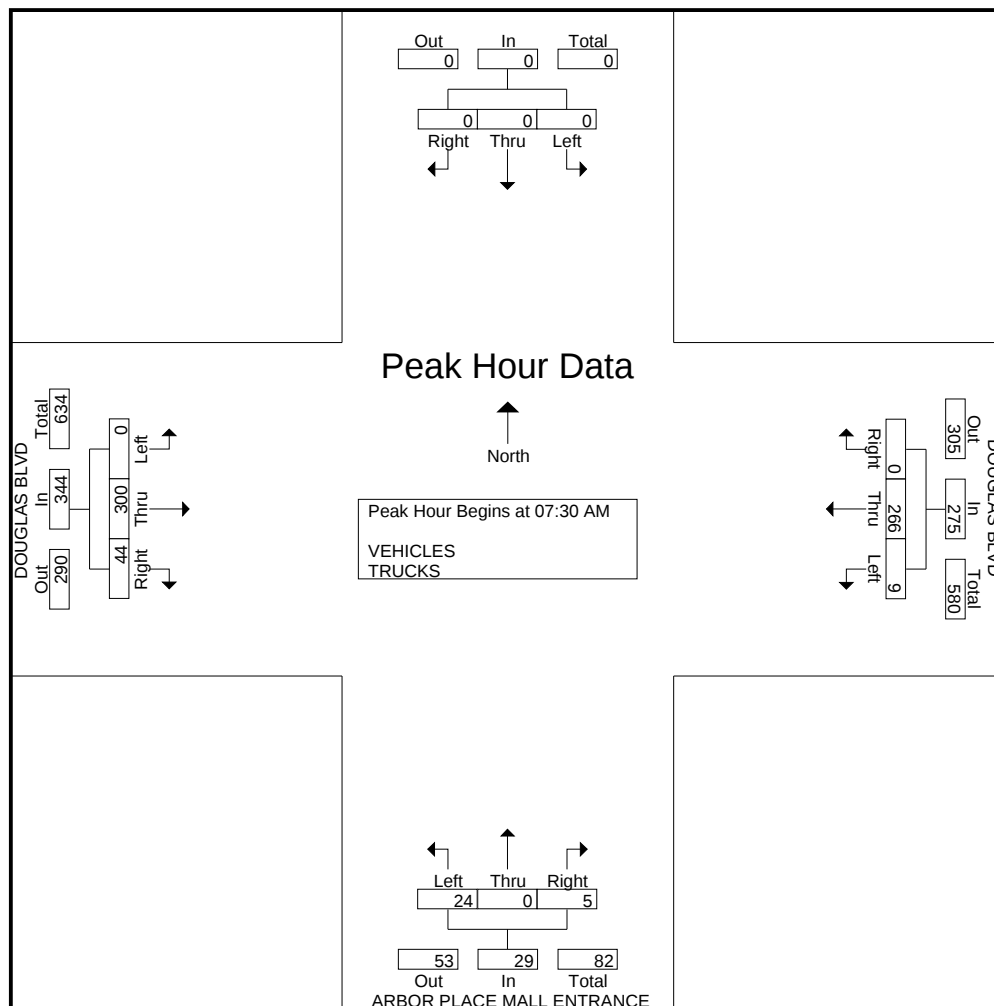
File Name : 15
Site Code : 00000015
Start Date : 5/20/2009
Page No : 1

Groups Printed- VEHICLES - TRUCKS																		
	Southbound				DOUGLAS BLVD Westbound				ARBOR PLACE MALL ENTRANCE Northbound				DOUGLAS BLVD Eastbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total	
06:30 AM	0	0	0	0	0	27	0	27	1	0	0	1	0	23	5	28	56	
06:45 AM	0	0	0	0	5	21	0	26	3	0	0	3	0	32	13	45	74	
Total	0	0	0	0	5	48	0	53	4	0	0	4	0	55	18	73	130	
07:00 AM	0	0	0	0	2	25	0	27	2	0	0	2	0	52	7	59	88	
07:15 AM	0	0	0	0	0	44	0	44	3	0	0	3	0	49	2	51	98	
07:30 AM	0	0	0	0	2	59	0	61	0	0	2	2	0	63	6	69	132	
07:45 AM	0	0	0	0	1	71	0	72	6	0	0	6	0	94	12	106	184	
Total	0	0	0	0	5	199	0	204	11	0	2	13	0	258	27	285	502	
08:00 AM	0	0	0	0	2	56	0	58	10	0	1	11	0	72	13	85	154	
08:15 AM	0	0	0	0	4	80	0	84	8	0	2	10	0	71	13	84	178	
*** BREAK ***																		
Total	0	0	0	0	6	136	0	142	18	0	3	21	0	143	26	169	332	
*** BREAK ***																		
04:30 PM	0	0	0	0	7	181	0	188	60	0	4	64	0	146	41	187	439	
04:45 PM	0	0	0	0	13	172	0	185	70	0	8	78	0	130	64	194	457	
Total	0	0	0	0	20	353	0	373	130	0	12	142	0	276	105	381	896	
05:00 PM	0	0	0	0	14	143	0	157	90	0	4	94	0	134	50	184	435	
05:15 PM	0	0	0	0	10	172	0	182	98	0	4	102	0	133	48	181	465	
05:30 PM	0	0	0	0	16	176	0	192	83	0	6	89	0	131	65	196	477	
05:45 PM	0	0	0	0	17	154	0	171	129	0	16	145	0	112	83	195	511	
Total	0	0	0	0	57	645	0	702	400	0	30	430	0	510	246	756	1888	
06:00 PM	0	0	0	0	10	145	0	155	110	0	10	120	0	133	63	196	471	
06:15 PM	0	0	0	0	8	161	0	169	76	0	5	81	0	127	63	190	440	
Grand Total	0	0	0	0	111	1687	0	1798	749	0	62	811	0	1502	548	2050	4659	
Apprch %	0	0	0		6.2	93.8	0		92.4	0	7.6		0	73.3	26.7			
Total %	0	0	0	0	2.4	36.2	0	38.6	16.1	0	1.3	17.4	0	32.2	11.8	44		
VEHICLES	0	0	0	0	111	1687	0	1798	749	0	62	811	0	1502	548	2050	4659	
% VEHICLES	0	0	0	0	100	100	0	100	100	0	100	100	0	100	100	100	100	
TRUCKS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% TRUCKS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Greater Traffic Company

File Name : 15
 Site Code : 00000015
 Start Date : 5/20/2009
 Page No : 2

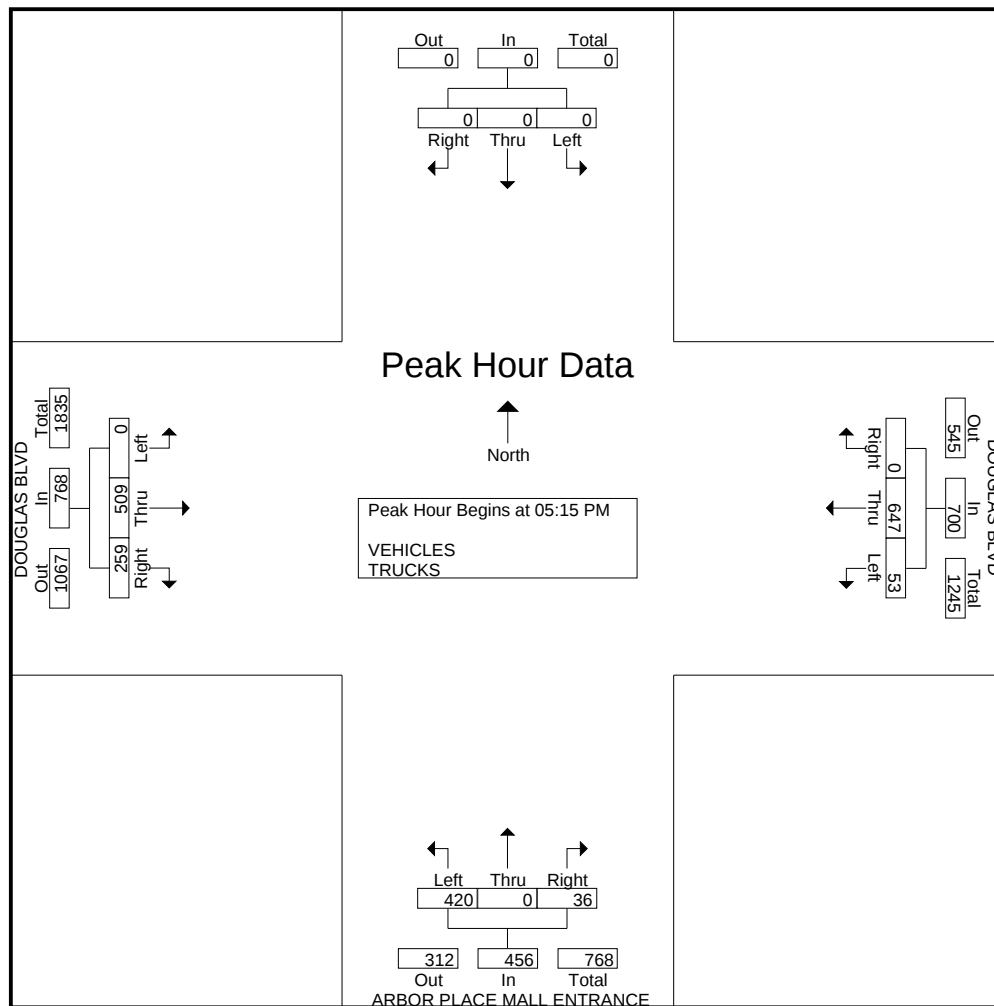
	Southbound				DOUGLAS BLVD Westbound				ARBOR PLACE MALL ENTRANCE Northbound				DOUGLAS BLVD Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	2	59	0	61	0	0	2	2	0	63	6	69	132
07:45 AM	0	0	0	0	1	71	0	72	6	0	0	6	0	94	12	106	184
08:00 AM	0	0	0	0	2	56	0	58	10	0	1	11	0	72	13	85	154
08:15 AM	0	0	0	0	4	80	0	84	8	0	2	10	0	71	13	84	178
Total Volume	0	0	0	0	9	266	0	275	24	0	5	29	0	300	44	344	648
% App. Total	0	0	0		3.3	96.7	0		82.8	0	17.2		0	87.2	12.8		
PHF	.000	.000	.000	.000	.563	.831	.000	.818	.600	.000	.625	.659	.000	.798	.846	.811	.880



Greater Traffic Company

File Name : 15
 Site Code : 00000015
 Start Date : 5/20/2009
 Page No : 3

	Southbound				DOUGLAS BLVD Westbound				ARBOR PLACE MALL ENTRANCE Northbound				DOUGLAS BLVD Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	0	0	0	0	10	172	0	182	98	0	4	102	0	133	48	181	465
05:30 PM	0	0	0	0	16	176	0	192	83	0	6	89	0	131	65	196	477
05:45 PM	0	0	0	0	17	154	0	171	129	0	16	145	0	112	83	195	511
06:00 PM	0	0	0	0	10	145	0	155	110	0	10	120	0	133	63	196	471
Total Volume	0	0	0	0	53	647	0	700	420	0	36	456	0	509	259	768	1924
% App. Total	0	0	0	0	7.6	92.4	0		92.1	0	7.9		0	66.3	33.7		
PHF	.000	.000	.000	.000	.779	.919	.000	.911	.814	.000	.563	.786	.000	.957	.780	.980	.941



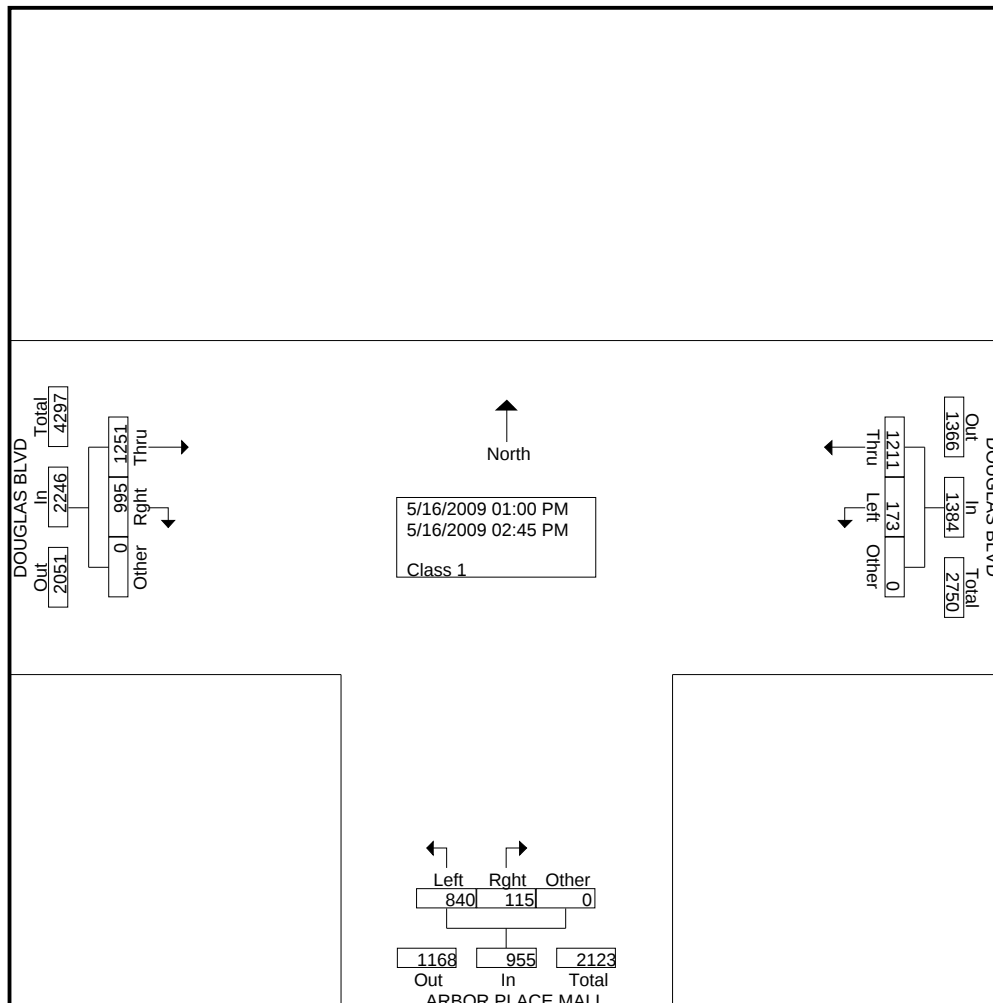
All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : ArborPl@DouglasBlvdSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 1

Groups Printed- Class 1

Start Time	DOUGLAS BLVD Westbound				ARBOR PLACE MALL Northbound				DOUGLAS BLVD Eastbound				Int. Total
	Thru	Left	Other	App. Total	Rght	Left	Other	App. Total	Rght	Thru	Other	App. Total	
01:00 PM	163	18	0	181	22	87	0	109	114	169	0	283	573
01:15 PM	140	27	0	167	11	75	0	86	136	154	0	290	543
01:30 PM	135	24	0	159	18	88	0	106	130	151	0	281	546
01:45 PM	160	26	0	186	18	122	0	140	142	163	0	305	631
Total	598	95	0	693	69	372	0	441	522	637	0	1159	2293
02:00 PM	143	17	0	160	12	106	0	118	130	142	0	272	550
02:15 PM	163	21	0	184	9	131	0	140	127	155	0	282	606
02:30 PM	167	19	0	186	10	114	0	124	99	169	0	268	578
02:45 PM	140	21	0	161	15	117	0	132	117	148	0	265	558
Total	613	78	0	691	46	468	0	514	473	614	0	1087	2292
Grand Total	1211	173	0	1384	115	840	0	955	995	1251	0	2246	4585
Apprch %	87.5	12.5	0		12	88	0		44.3	55.7	0		
Total %	26.4	3.8	0	30.2	2.5	18.3	0	20.8	21.7	27.3	0	49	

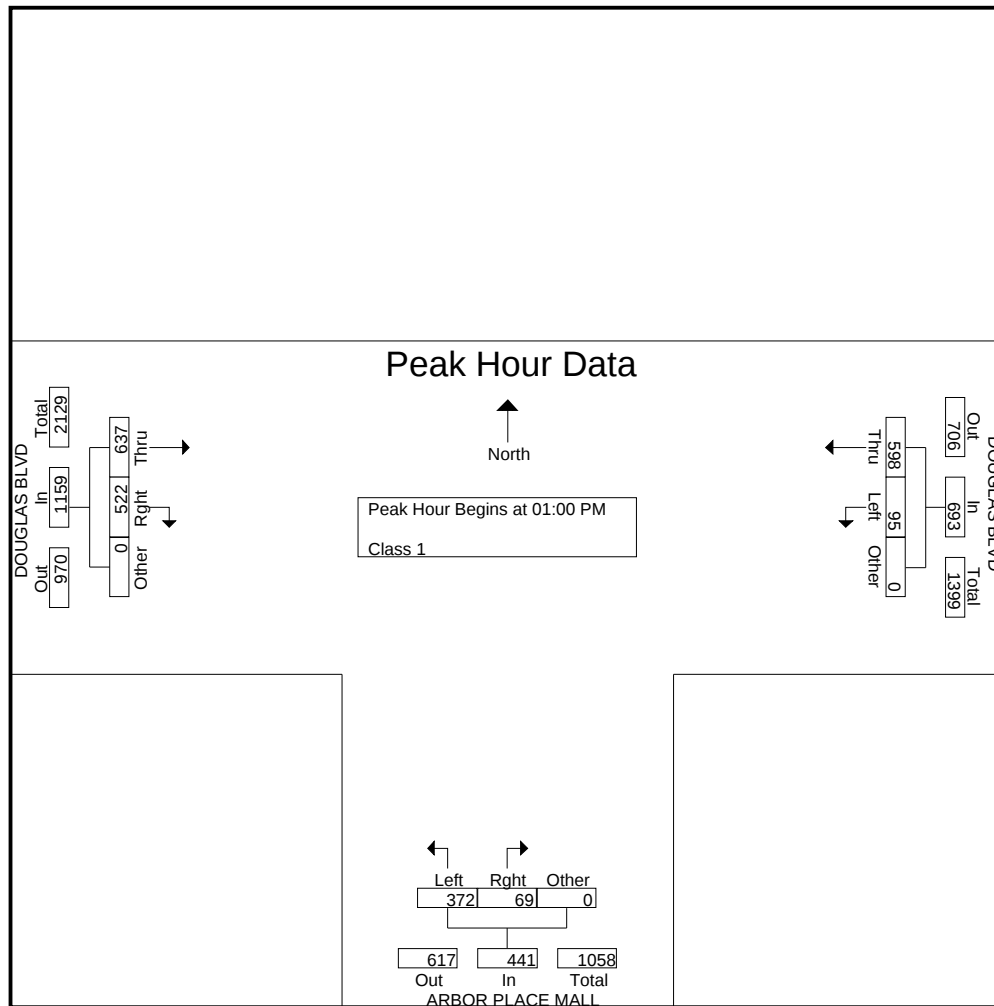


All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : ArborPI@DouglasBlvdSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 2

	DOUGLAS BLVD Westbound				ARBOR PLACE MALL Northbound				DOUGLAS BLVD Eastbound				
Start Time	Thru	Left	Other	App. Total	Right	Left	Other	App. Total	Right	Thru	Other	App. Total	Int. Total
Peak Hour Analysis From 1:00:00 PM to 1:00:00 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 1:00:00 PM													
1:00:00 PM	88	8	0	96	12	47	0	59	61	87	0	148	303
01:01 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
01:02 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
01:03 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	88	8	0	96	12	47	0	59	61	87	0	148	303
% App. Total	91.7	8.3	0		20.3	79.7	0		41.2	58.8	0		
PHF	.250	.250	.000	.250	.250	.250	.000	.250	.250	.250	.000	.250	.250



Greater Traffic Company

File Name : 16
 Site Code : 00000013
 Start Date : 5/13/2009
 Page No : 1

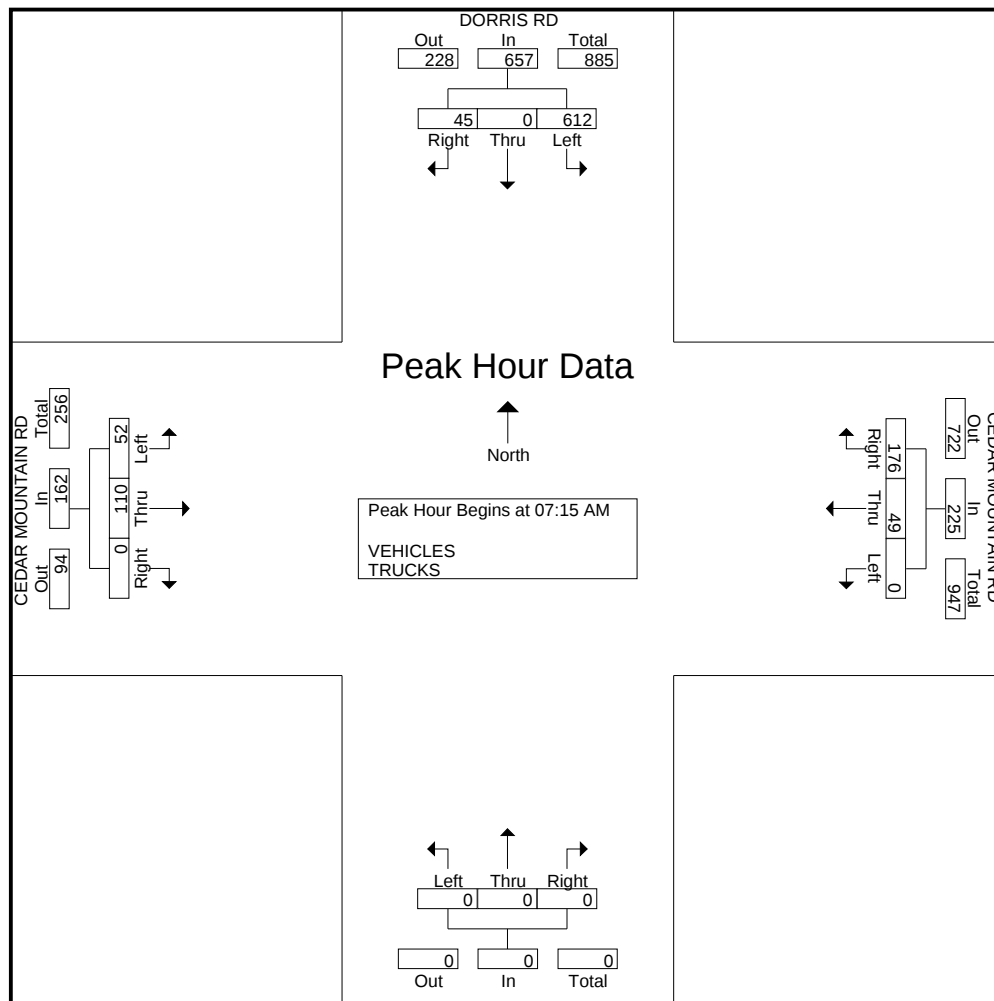
Groups Printed- VEHICLES - TRUCKS

	DORRIS RD Southbound				CEDAR MOUNTAIN RD Westbound				Northbound				CEDAR MOUNTAIN RD Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	142	0	3	145	0	12	18	30	0	0	0	0	10	19	0	29	204
06:45 AM	130	0	8	138	0	4	26	30	0	0	0	0	12	10	0	22	190
Total	272	0	11	283	0	16	44	60	0	0	0	0	22	29	0	51	394
07:00 AM	129	0	7	136	0	8	21	29	0	0	0	0	14	27	0	41	206
07:15 AM	158	0	10	168	0	12	46	58	0	0	0	0	14	21	0	35	261
07:30 AM	147	0	16	163	0	15	65	80	0	0	0	0	14	35	0	49	292
07:45 AM	166	0	8	174	0	14	38	52	0	0	0	0	14	28	0	42	268
Total	600	0	41	641	0	49	170	219	0	0	0	0	56	111	0	167	1027
08:00 AM	141	0	11	152	0	8	27	35	0	0	0	0	10	26	0	36	223
08:15 AM	99	0	6	105	0	21	28	49	0	0	0	0	5	11	0	16	170
*** BREAK ***																	
Total	240	0	17	257	0	29	55	84	0	0	0	0	15	37	0	52	393
*** BREAK ***																	
04:30 PM	63	0	15	78	0	25	121	146	0	0	0	0	18	21	0	39	263
04:45 PM	72	0	9	81	0	19	145	164	0	0	0	0	7	24	0	31	276
Total	135	0	24	159	0	44	266	310	0	0	0	0	25	45	0	70	539
05:00 PM	54	0	12	66	0	21	138	159	0	0	0	0	10	15	0	25	250
05:15 PM	52	0	14	66	0	26	147	173	0	0	0	0	12	7	0	19	258
05:30 PM	59	0	16	75	0	25	145	170	0	0	0	0	8	13	0	21	266
05:45 PM	83	0	10	93	0	30	120	150	0	0	0	0	8	15	0	23	266
Total	248	0	52	300	0	102	550	652	0	0	0	0	38	50	0	88	1040
06:00 PM	46	0	7	53	0	27	131	158	0	0	0	0	14	18	0	32	243
06:15 PM	56	0	18	74	0	23	119	142	0	0	0	0	12	11	0	23	239
Grand Total	1597	0	170	1767	0	290	1335	1625	0	0	0	0	182	301	0	483	3875
Apprch %	90.4	0	9.6		0	17.8	82.2		0	0	0		37.7	62.3	0		
Total %	41.2	0	4.4	45.6	0	7.5	34.5	41.9	0	0	0	0	4.7	7.8	0	12.5	
VEHICLES	1591	0	166	1757	0	288	1335	1623	0	0	0	0	180	301	0	481	3861
% VEHICLES	99.6	0	97.6	99.4	0	99.3	100	99.9	0	0	0	0	98.9	100	0	99.6	99.6
TRUCKS	6	0	4	10	0	2	0	2	0	0	0	0	2	0	0	2	14
% TRUCKS	0.4	0	2.4	0.6	0	0.7	0	0.1	0	0	0	0	1.1	0	0	0.4	0.4

Greater Traffic Company

File Name : 16
 Site Code : 00000013
 Start Date : 5/13/2009
 Page No : 2

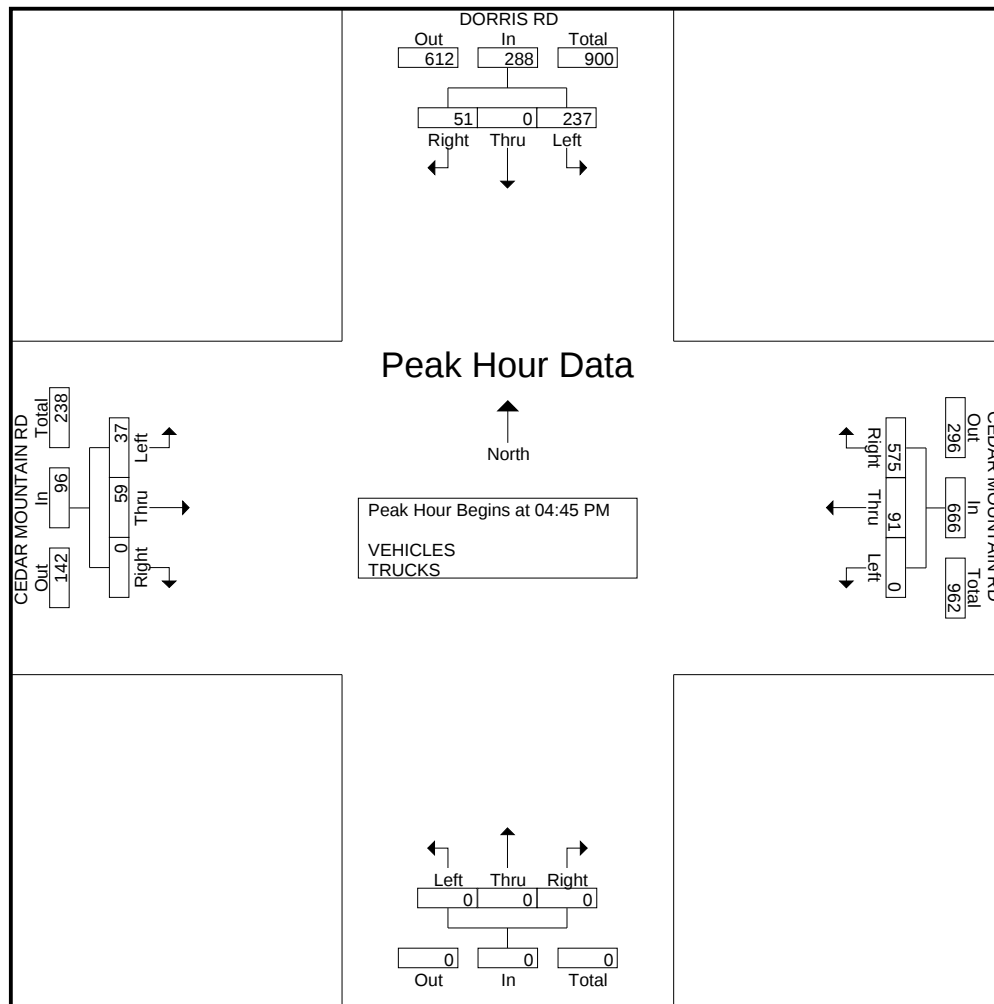
	DORRIS RD Southbound				CEDAR MOUNTAIN RD Westbound				Northbound				CEDAR MOUNTAIN RD Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	158	0	10	168	0	12	46	58	0	0	0	0	14	21	0	35	261
07:30 AM	147	0	16	163	0	15	65	80	0	0	0	0	14	35	0	49	292
07:45 AM	166	0	8	174	0	14	38	52	0	0	0	0	14	28	0	42	268
08:00 AM	141	0	11	152	0	8	27	35	0	0	0	0	10	26	0	36	223
Total Volume	612	0	45	657	0	49	176	225	0	0	0	0	52	110	0	162	1044
% App. Total	93.2	0	6.8		0	21.8	78.2		0	0	0		32.1	67.9	0		
PHF	.922	.000	.703	.944	.000	.817	.677	.703	.000	.000	.000	.000	.929	.786	.000	.827	.894



Greater Traffic Company

File Name : 16
 Site Code : 00000013
 Start Date : 5/13/2009
 Page No : 3

	DORRIS RD Southbound				CEDAR MOUNTAIN RD Westbound				Northbound				CEDAR MOUNTAIN RD Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	72	0	9	81	0	19	145	164	0	0	0	0	7	24	0	31	276
05:00 PM	54	0	12	66	0	21	138	159	0	0	0	0	10	15	0	25	250
05:15 PM	52	0	14	66	0	26	147	173	0	0	0	0	12	7	0	19	258
05:30 PM	59	0	16	75	0	25	145	170	0	0	0	0	8	13	0	21	266
Total Volume	237	0	51	288	0	91	575	666	0	0	0	0	37	59	0	96	1050
% App. Total	82.3	0	17.7		0	13.7	86.3		0	0	0		38.5	61.5	0		
PHF	.823	.000	.797	.889	.000	.875	.978	.962	.000	.000	.000	.000	.771	.615	.000	.774	.951



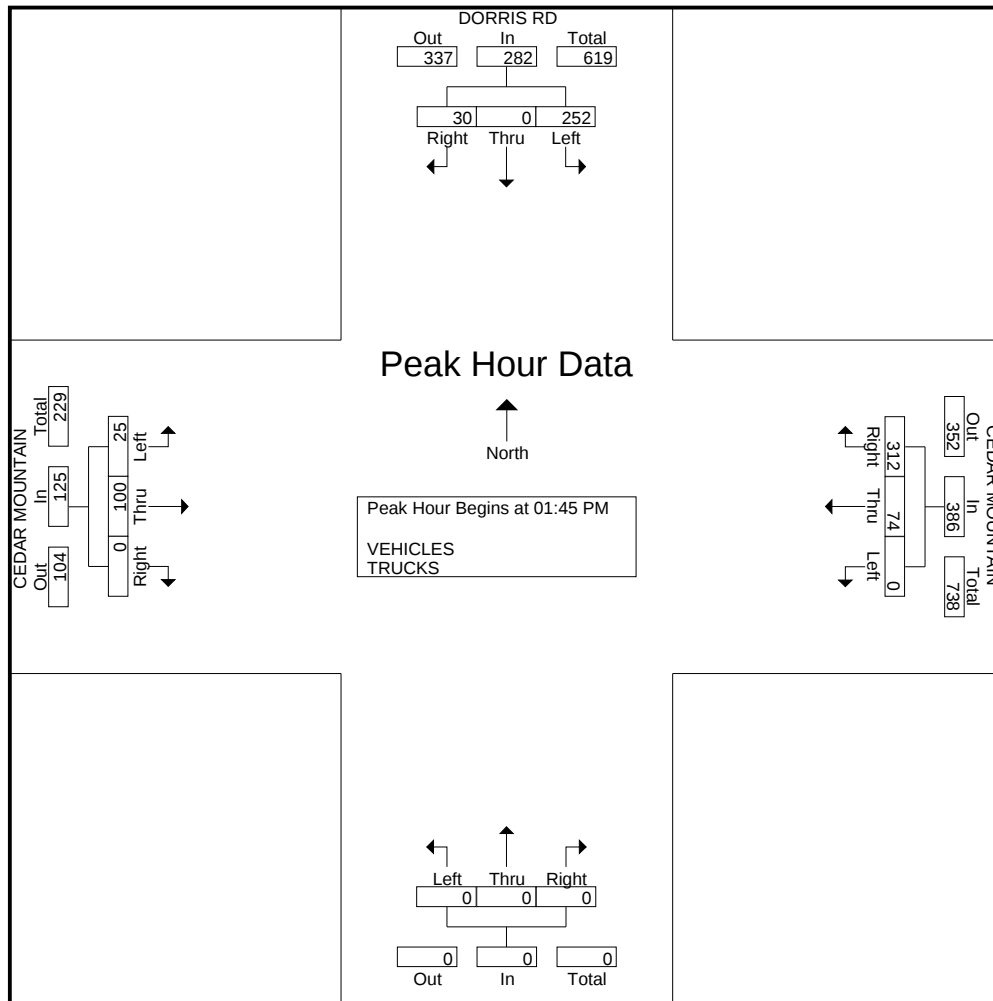
File Name : 16SAT
Site Code : 00000016
Start Date : 5/23/2009
Page No : 1

[illegible]

Greater Traffic Company

File Name : 16SAT
 Site Code : 00000016
 Start Date : 5/23/2009
 Page No : 2

	DORRIS RD Southbound				CEDAR MOUNTAIN Westbound				Northbound				CEDAR MOUNTAIN Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 01:45 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:45 PM																	
01:45 PM	55	0	10	65	0	25	84	109	0	0	0	0	6	29	0	35	209
02:00 PM	63	0	6	69	0	17	77	94	0	0	0	0	7	25	0	32	195
02:15 PM	58	0	5	63	0	19	75	94	0	0	0	0	10	26	0	36	193
02:30 PM	76	0	9	85	0	13	76	89	0	0	0	0	2	20	0	22	196
Total Volume	252	0	30	282	0	74	312	386	0	0	0	0	25	100	0	125	793
% App. Total	89.4	0	10.6		0	19.2	80.8		0	0	0		20	80	0		
PHF	.829	.000	.750	.829	.000	.740	.929	.885	.000	.000	.000	.000	.625	.862	.000	.868	.949



Greater Traffic Company

File Name : 17
 Site Code : 00000017
 Start Date : 5/13/2009
 Page No : 1

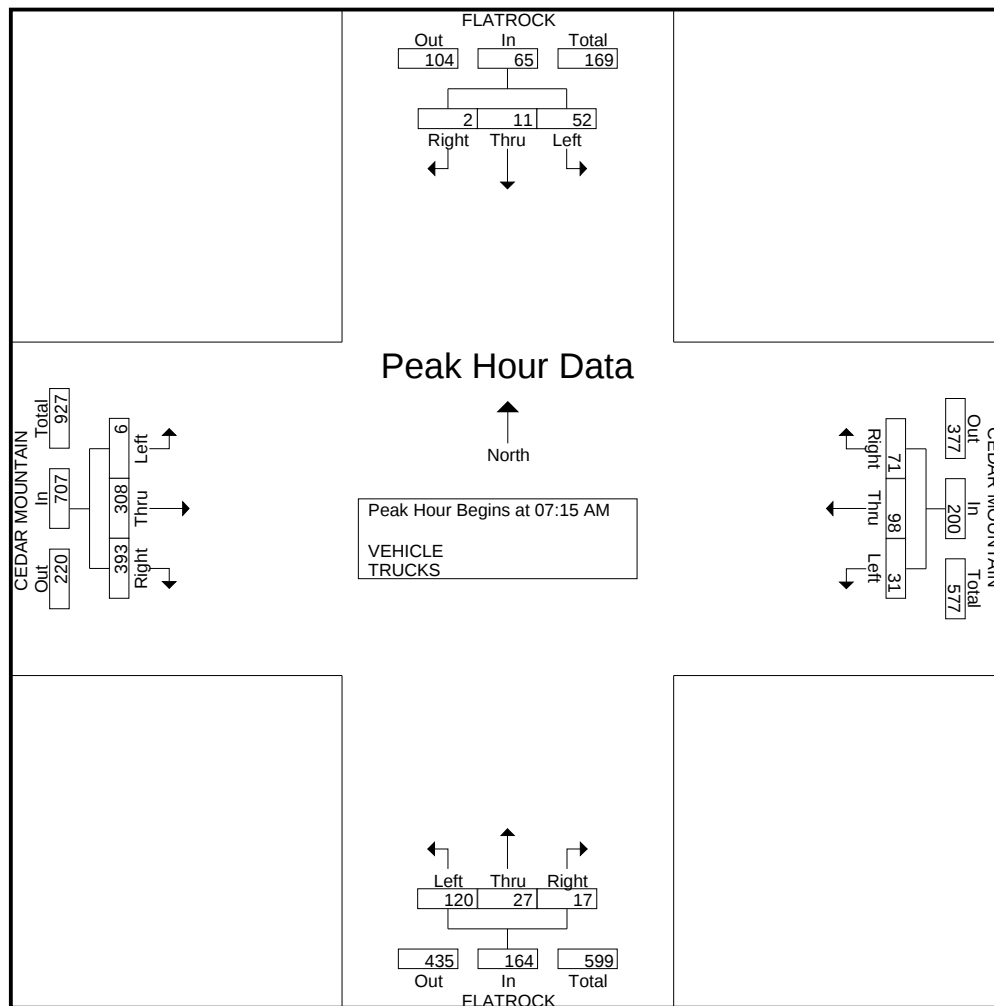
Groups Printed- VEHICLE - TRUCKS

	FLATROCK Southbound				CEDAR MOUNTAIN Westbound				FLATROCK Northbound				CEDAR MOUNTAIN Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	1	0	0	1	2	12	1	15	12	1	5	18	0	38	114	152	186
06:45 AM	0	0	1	1	7	10	0	17	21	1	1	23	0	38	107	145	186
Total	1	0	1	2	9	22	1	32	33	2	6	41	0	76	221	297	372
07:00 AM	1	0	0	1	3	12	5	20	16	2	3	21	1	50	97	148	190
07:15 AM	10	2	1	13	9	20	20	49	39	6	4	49	2	75	102	179	290
07:30 AM	15	1	1	17	5	37	21	63	36	7	2	45	2	69	101	172	297
07:45 AM	22	6	0	28	11	26	24	61	25	12	5	42	1	91	104	196	327
Total	48	9	2	59	28	95	70	193	116	27	14	157	6	285	404	695	1104
08:00 AM	5	2	0	7	6	15	6	27	20	2	6	28	1	73	86	160	222
08:15 AM	2	1	0	3	1	26	3	30	25	0	3	28	0	42	63	105	166
*** BREAK ***																	
Total	7	3	0	10	7	41	9	57	45	2	9	56	1	115	149	265	388
*** BREAK ***																	
04:30 PM	5	0	0	5	2	50	4	56	95	0	4	99	1	31	45	77	237
04:45 PM	2	2	3	7	7	53	4	64	96	3	6	105	0	34	61	95	271
Total	7	2	3	12	9	103	8	120	191	3	10	204	1	65	106	172	508
05:00 PM	6	0	0	6	3	61	4	68	104	1	6	111	2	24	44	70	255
05:15 PM	3	1	0	4	4	56	4	64	122	2	8	132	0	24	29	53	253
05:30 PM	5	2	0	7	8	60	4	72	109	2	8	119	0	23	43	66	264
05:45 PM	5	3	2	10	6	54	4	64	97	1	2	100	2	37	59	98	272
Total	19	6	2	27	21	231	16	268	432	6	24	462	4	108	175	287	1044
06:00 PM	4	0	0	4	11	48	1	60	110	1	8	119	0	21	44	65	248
06:15 PM	1	1	1	3	5	52	0	57	99	0	5	104	1	22	42	65	229
Grand Total	87	21	9	117	90	592	105	787	1026	41	76	1143	13	692	1141	1846	3893
Apprch %	74.4	17.9	7.7		11.4	75.2	13.3		89.8	3.6	6.6		0.7	37.5	61.8		
Total %	2.2	0.5	0.2	3	2.3	15.2	2.7	20.2	26.4	1.1	2	29.4	0.3	17.8	29.3	47.4	
VEHICLE	87	21	9	117	90	590	105	785	1026	41	76	1143	13	689	1140	1842	3887
% VEHICLE	100	100	100	100	100	99.7	100	99.7	100	100	100	100	100	99.6	99.9	99.8	99.8
TRUCKS	0	0	0	0	0	2	0	2	0	0	0	0	0	3	1	4	6
% TRUCKS	0	0	0	0	0	0.3	0	0.3	0	0	0	0	0	0.4	0.1	0.2	0.2

Greater Traffic Company

File Name : 17
 Site Code : 00000017
 Start Date : 5/13/2009
 Page No : 2

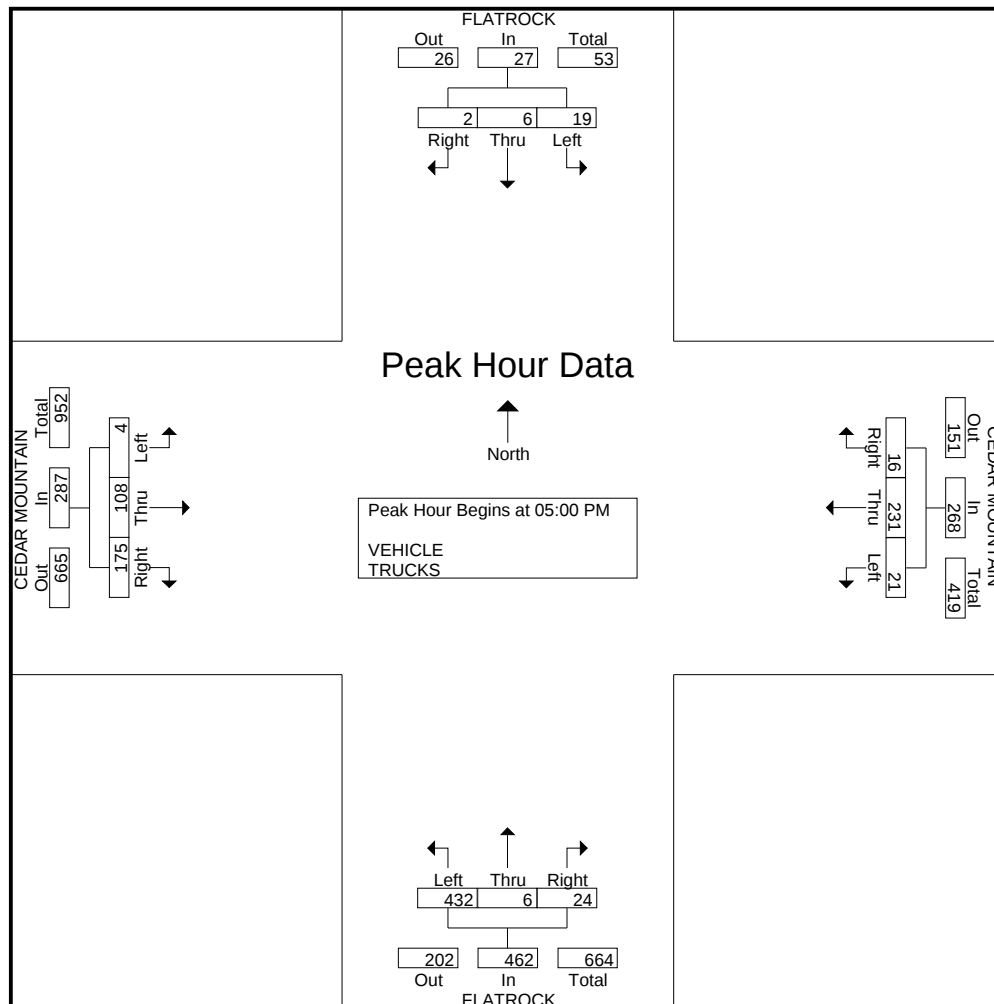
	FLATROCK Southbound				CEDAR MOUNTAIN Westbound				FLATROCK Northbound				CEDAR MOUNTAIN Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	10	2	1	13	9	20	20	49	39	6	4	49	2	75	102	179	290
07:30 AM	15	1	1	17	5	37	21	63	36	7	2	45	2	69	101	172	297
07:45 AM	22	6	0	28	11	26	24	61	25	12	5	42	1	91	104	196	327
08:00 AM	5	2	0	7	6	15	6	27	20	2	6	28	1	73	86	160	222
Total Volume	52	11	2	65	31	98	71	200	120	27	17	164	6	308	393	707	1136
% App. Total	80	16.9	3.1		15.5	49	35.5		73.2	16.5	10.4		0.8	43.6	55.6		
PHF	.591	.458	.500	.580	.705	.662	.740	.794	.769	.563	.708	.837	.750	.846	.945	.902	.869



Greater Traffic Company

File Name : 17
 Site Code : 00000017
 Start Date : 5/13/2009
 Page No : 3

	FLATROCK Southbound				CEDAR MOUNTAIN Westbound				FLATROCK Northbound				CEDAR MOUNTAIN Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	6	0	0	6	3	61	4	68	104	1	6	111	2	24	44	70	255
05:15 PM	3	1	0	4	4	56	4	64	122	2	8	132	0	24	29	53	253
05:30 PM	5	2	0	7	8	60	4	72	109	2	8	119	0	23	43	66	264
05:45 PM	5	3	2	10	6	54	4	64	97	1	2	100	2	37	59	98	272
Total Volume	19	6	2	27	21	231	16	268	432	6	24	462	4	108	175	287	1044
% App. Total	70.4	22.2	7.4		7.8	86.2	6		93.5	1.3	5.2		1.4	37.6	61		
PHF	.792	.500	.250	.675	.656	.947	1.000	.931	.885	.750	.750	.875	.500	.730	.742	.732	.960



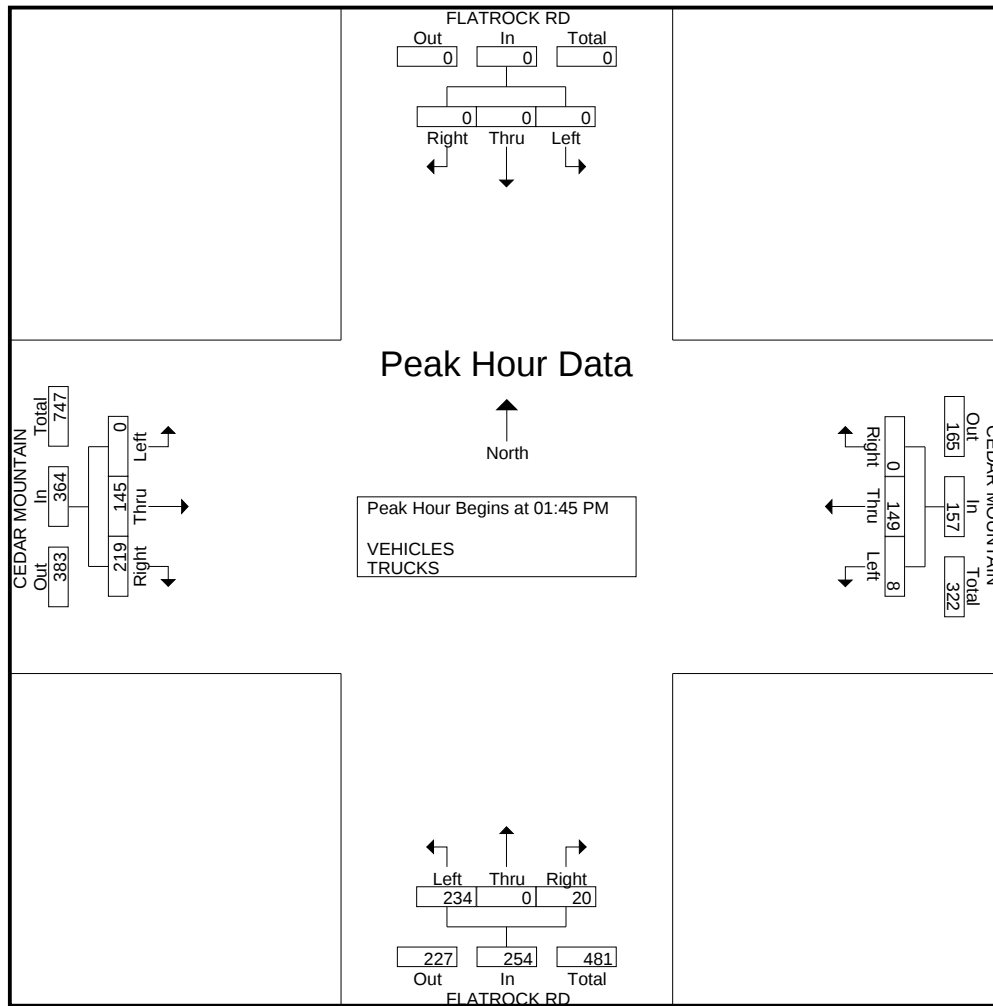
File Name : 17sat
Site Code : 00000017
Start Date : 5/16/2009
Page No : 1

[illegible]

Greater Traffic Company

File Name : 17sat
 Site Code : 00000017
 Start Date : 5/16/2009
 Page No : 2

	FLATROCK RD Southbound				CEDAR MOUNTAIN Westbound				FLATROCK RD Northbound				CEDAR MOUNTAIN Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:45 PM																	
01:45 PM	0	0	0	0	3	43	0	46	60	0	6	66	0	40	51	91	203
02:00 PM	0	0	0	0	1	46	0	47	52	0	3	55	0	30	51	81	183
02:15 PM	0	0	0	0	3	28	0	31	62	0	7	69	0	33	52	85	185
02:30 PM	0	0	0	0	1	32	0	33	60	0	4	64	0	42	65	107	204
Total Volume	0	0	0	0	8	149	0	157	234	0	20	254	0	145	219	364	775
% App. Total	0	0	0		5.1	94.9	0		92.1	0	7.9		0	39.8	60.2		
PHF	.000	.000	.000	.000	.667	.810	.000	.835	.944	.000	.714	.920	.000	.863	.842	.850	.950



Greater Traffic Company

File Name : 18
 Site Code : 00000013
 Start Date : 5/13/2009
 Page No : 1

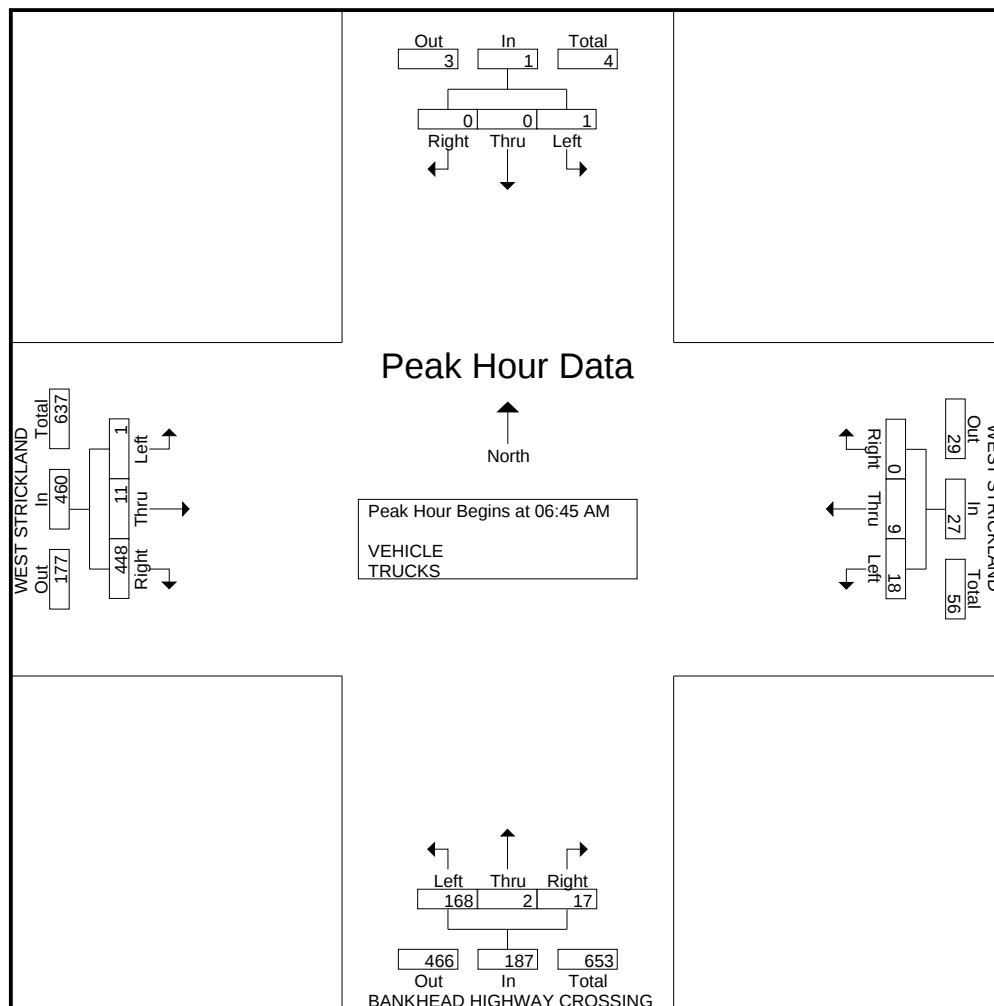
Groups Printed- VEHICLE - TRUCKS

	Southbound				WEST STRICKLAND Westbound				BANKHEAD HIGHWAY CROSSING Northbound				WEST STRICKLAND Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	0	0	0	0	2	0	0	2	18	0	3	21	0	0	103	103	126
06:45 AM	0	0	0	0	3	0	0	3	35	0	1	36	0	3	131	134	173
Total	0	0	0	0	5	0	0	5	53	0	4	57	0	3	234	237	299
07:00 AM	0	0	0	0	6	2	0	8	32	1	4	37	0	1	96	97	142
07:15 AM	0	0	0	0	6	2	0	8	49	0	8	57	1	2	107	110	175
07:30 AM	1	0	0	1	3	5	0	8	52	1	4	57	0	5	114	119	185
07:45 AM	1	1	0	2	1	2	1	4	45	1	3	49	0	9	92	101	156
Total	2	1	0	3	16	11	1	28	178	3	19	200	1	17	409	427	658
08:00 AM	0	0	0	0	6	1	0	7	33	0	9	42	0	6	85	91	140
08:15 AM	0	0	0	0	3	1	0	4	30	0	6	36	0	6	97	103	143
*** BREAK ***																	
Total	0	0	0	0	9	2	0	11	63	0	15	78	0	12	182	194	283
*** BREAK ***																	
04:30 PM	0	0	0	0	2	4	0	6	111	0	6	117	0	6	75	81	204
04:45 PM	0	0	0	0	4	3	0	7	104	0	8	112	0	3	59	62	181
Total	0	0	0	0	6	7	0	13	215	0	14	229	0	9	134	143	385
05:00 PM	1	0	0	1	12	2	1	15	117	0	6	123	0	3	63	66	205
05:15 PM	0	1	0	1	4	8	0	12	122	1	13	136	0	1	57	58	207
05:30 PM	0	0	0	0	6	5	0	11	116	0	14	130	0	6	61	67	208
05:45 PM	0	0	0	0	3	3	0	6	92	0	7	99	0	6	80	86	191
Total	1	1	0	2	25	18	1	44	447	1	40	488	0	16	261	277	811
06:00 PM	0	0	0	0	8	5	1	14	139	0	13	152	0	2	61	63	229
06:15 PM	0	0	0	0	8	2	0	10	190	4	16	210	0	10	118	128	348
Grand Total	3	2	0	5	77	45	3	125	1285	8	121	1414	1	69	1399	1469	3013
Apprch %	60	40	0		61.6	36	2.4		90.9	0.6	8.6		0.1	4.7	95.2		
Total %	0.1	0.1	0	0.2	2.6	1.5	0.1	4.1	42.6	0.3	4	46.9	0	2.3	46.4	48.8	
VEHICLE	3	2	0	5	73	43	3	119	1187	6	113	1306	1	64	1338	1403	2833
% VEHICLE	100	100	0	100	94.8	95.6	100	95.2	92.4	75	93.4	92.4	100	92.8	95.6	95.5	94
TRUCKS	0	0	0	0	4	2	0	6	98	2	8	108	0	5	61	66	180
% TRUCKS	0	0	0	0	5.2	4.4	0	4.8	7.6	25	6.6	7.6	0	7.2	4.4	4.5	6

Greater Traffic Company

File Name : 18
 Site Code : 00000013
 Start Date : 5/13/2009
 Page No : 2

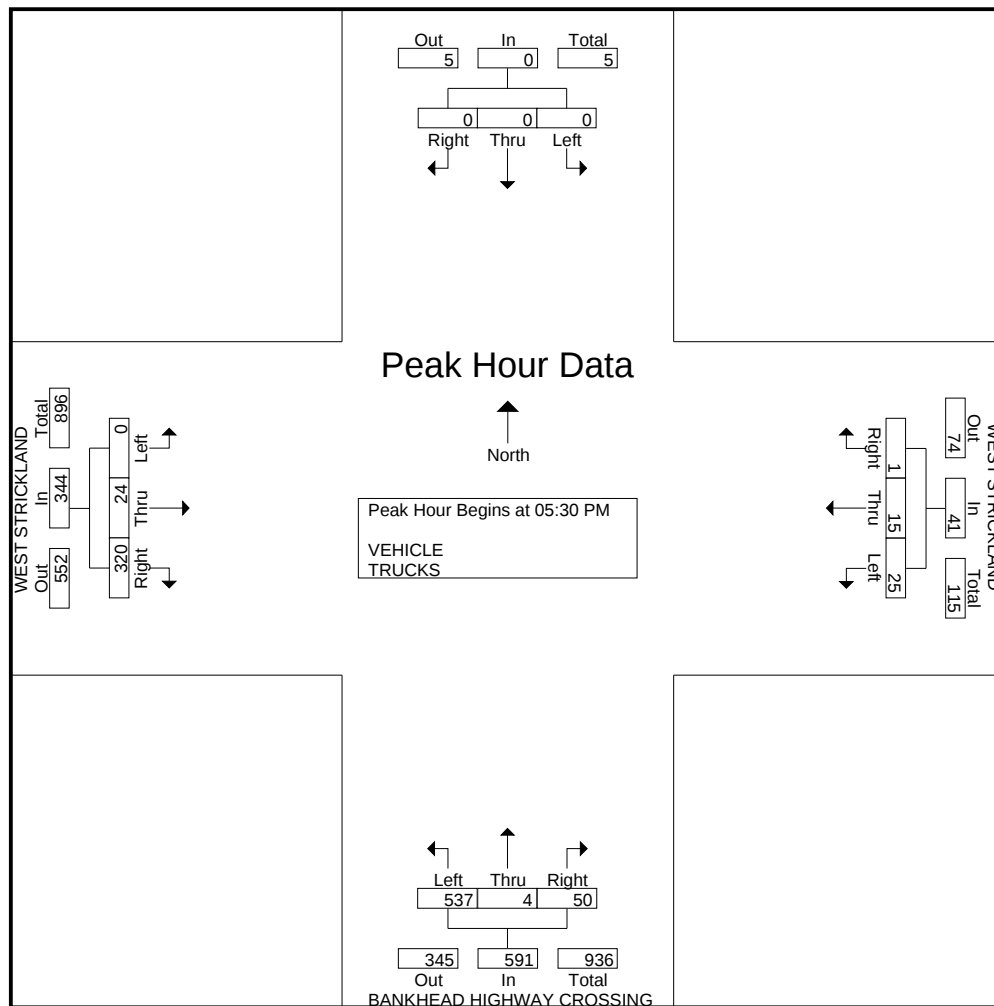
	Southbound				WEST STRICKLAND Westbound				BANKHEAD HIGHWAY CROSSING Northbound				WEST STRICKLAND Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45 AM																	
06:45 AM	0	0	0	0	3	0	0	3	35	0	1	36	0	3	131	134	173
07:00 AM	0	0	0	0	6	2	0	8	32	1	4	37	0	1	96	97	142
07:15 AM	0	0	0	0	6	2	0	8	49	0	8	57	1	2	107	110	175
07:30 AM	1	0	0	1	3	5	0	8	52	1	4	57	0	5	114	119	185
Total Volume	1	0	0	1	18	9	0	27	168	2	17	187	1	11	448	460	675
% App. Total	100	0	0		66.7	33.3	0		89.8	1.1	9.1		0.2	2.4	97.4		
PHF	.250	.000	.000	.250	.750	.450	.000	.844	.808	.500	.531	.820	.250	.550	.855	.858	.912



Greater Traffic Company

File Name : 18
 Site Code : 00000013
 Start Date : 5/13/2009
 Page No : 3

	Southbound				WEST STRICKLAND Westbound				BANKHEAD HIGHWAY CROSSING Northbound				WEST STRICKLAND Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:30 PM																	
05:30 PM	0	0	0	0	6	5	0	11	116	0	14	130	0	6	61	67	208
05:45 PM	0	0	0	0	3	3	0	6	92	0	7	99	0	6	80	86	191
06:00 PM	0	0	0	0	8	5	1	14	139	0	13	152	0	2	61	63	229
06:15 PM	0	0	0	0	8	2	0	10	190	4	16	210	0	10	118	128	348
Total Volume	0	0	0	0	25	15	1	41	537	4	50	591	0	24	320	344	976
% App. Total	0	0	0	0	61	36.6	2.4		90.9	0.7	8.5		0	7	93		
PHF	.000	.000	.000	.000	.781	.750	.250	.732	.707	.250	.781	.704	.000	.600	.678	.672	.701



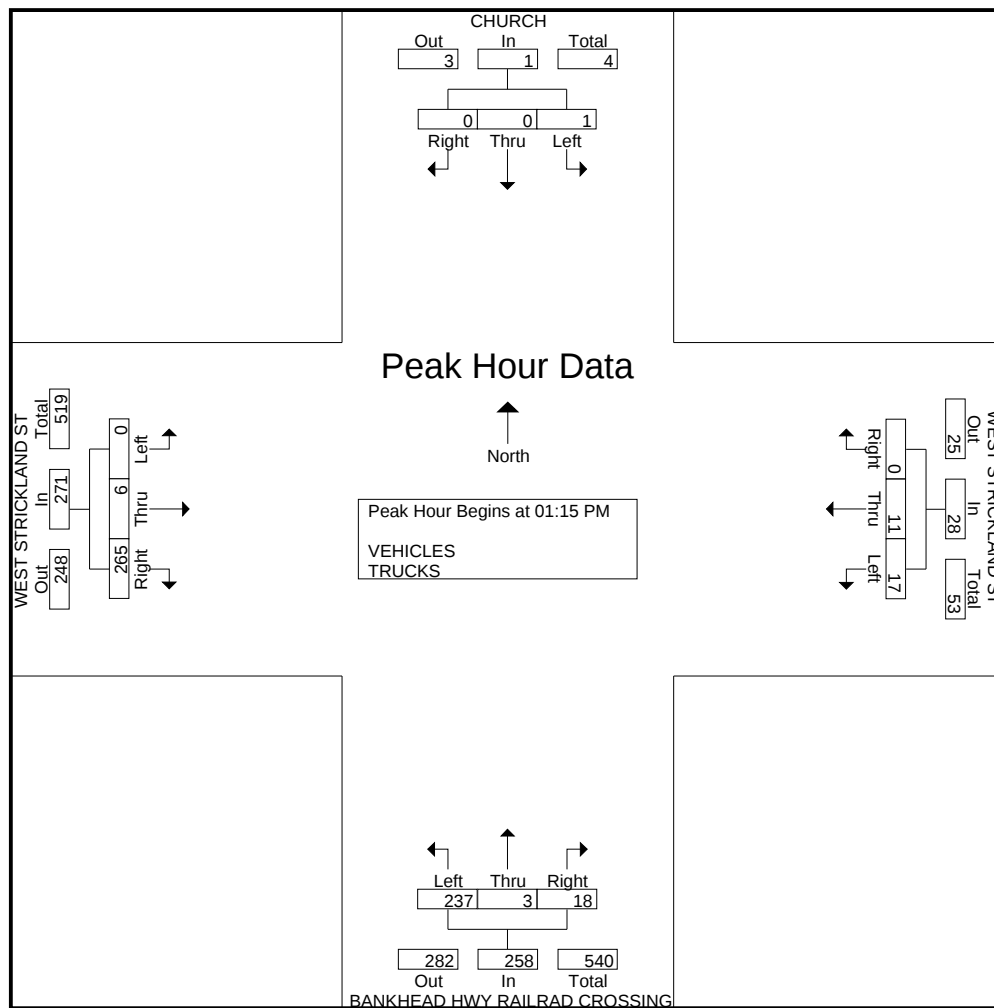
File Name : 18SAT
Site Code : 00001818
Start Date : 5/29/2009
Page No : 1

[illegible]

Greater Traffic Company

File Name : 18SAT
 Site Code : 00001818
 Start Date : 5/29/2009
 Page No : 2

	CHURCH Southbound				WEST STRICKLAND ST Westbound				BANKHEAD HWY RAILRAD CROSSING Northbound				WEST STRICKLAND ST Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:15 PM																	
01:15 PM	0	0	0	0	2	2	0	4	56	1	2	59	0	1	73	74	137
01:30 PM	0	0	0	0	1	5	0	6	55	0	7	62	0	2	78	80	148
01:45 PM	1	0	0	1	3	1	0	4	49	1	5	55	0	1	47	48	108
02:00 PM	0	0	0	0	11	3	0	14	77	1	4	82	0	2	67	69	165
Total Volume	1	0	0	1	17	11	0	28	237	3	18	258	0	6	265	271	558
% App. Total	100	0	0		60.7	39.3	0		91.9	1.2	7		0	2.2	97.8		
PHF	.250	.000	.000	.250	.386	.550	.000	.500	.769	.750	.643	.787	.000	.750	.849	.847	.845



Greater Traffic Company

File Name : 19
 Site Code : 00000019
 Start Date : 5/19/2009
 Page No : 1

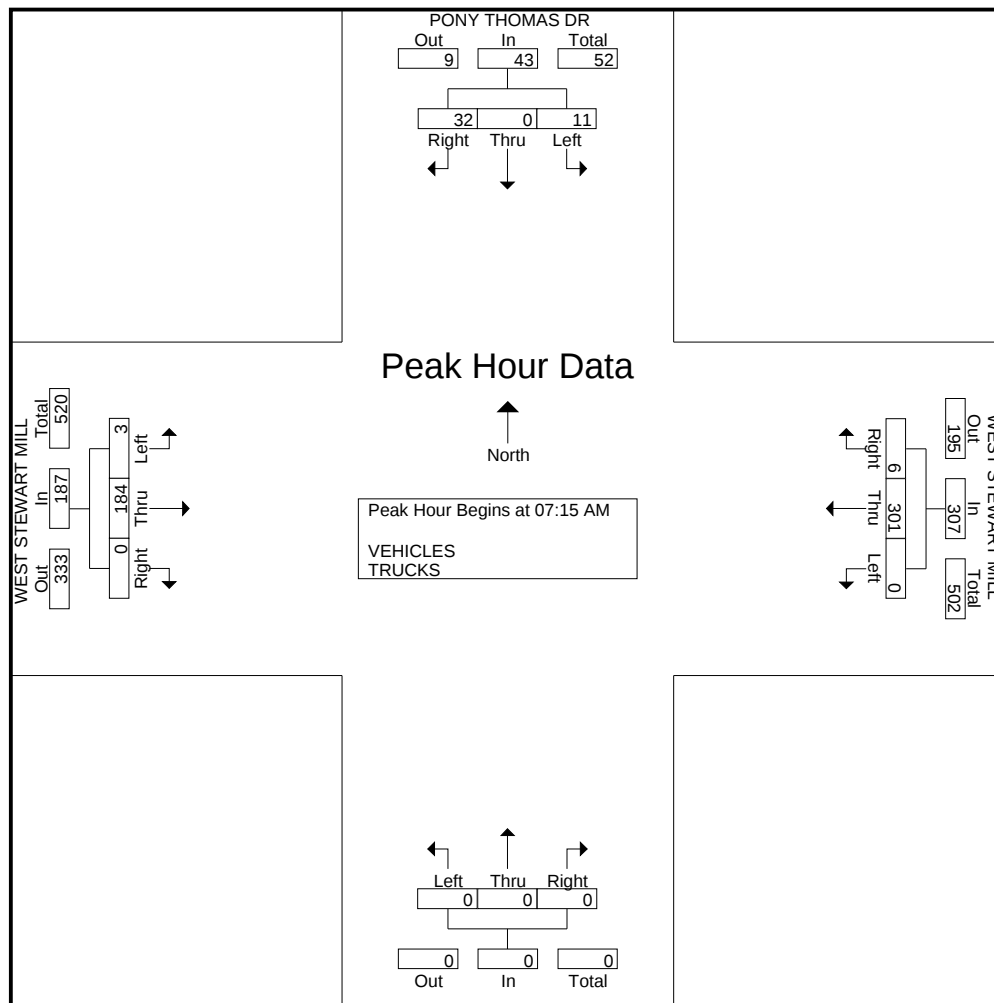
Groups Printed- VEHICLES - TRUCKS

	PONY THOMAS DR Southbound				WEST STEWART MILL Westbound				Northbound				WEST STEWART MILL Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	0	0	4	4	0	24	0	24	0	0	0	0	2	10	0	12	40
06:45 AM	0	0	4	4	0	37	0	37	0	0	0	0	2	16	0	18	59
Total	0	0	8	8	0	61	0	61	0	0	0	0	4	26	0	30	99
07:00 AM	2	0	7	9	0	53	0	53	0	0	0	0	3	32	0	35	97
07:15 AM	3	0	8	11	0	63	1	64	0	0	0	0	1	41	0	42	117
07:30 AM	5	0	7	12	0	62	2	64	0	0	0	0	2	45	0	47	123
07:45 AM	1	0	10	11	0	94	3	97	0	0	0	0	0	44	0	44	152
Total	11	0	32	43	0	272	6	278	0	0	0	0	6	162	0	168	489
08:00 AM	2	0	7	9	0	82	0	82	0	0	0	0	0	54	0	54	145
08:15 AM	0	0	2	2	0	61	1	62	0	0	0	0	1	30	0	31	95
*** BREAK ***																	
Total	2	0	9	11	0	143	1	144	0	0	0	0	1	84	0	85	240
*** BREAK ***																	
04:30 PM	2	0	5	7	0	105	4	109	0	0	0	0	3	84	0	87	203
04:45 PM	2	0	6	8	0	88	5	93	0	0	0	0	9	69	0	78	179
Total	4	0	11	15	0	193	9	202	0	0	0	0	12	153	0	165	382
05:00 PM	2	0	5	7	0	69	2	71	0	0	0	0	6	87	0	93	171
05:15 PM	0	0	3	3	0	82	4	86	0	0	0	0	5	72	0	77	166
05:30 PM	3	0	7	10	0	82	4	86	0	0	0	0	7	96	0	103	199
05:45 PM	2	0	3	5	0	77	5	82	0	0	0	0	6	73	0	79	166
Total	7	0	18	25	0	310	15	325	0	0	0	0	24	328	0	352	702
06:00 PM	1	0	5	6	0	80	0	80	0	0	0	0	10	78	0	88	174
06:15 PM	4	0	5	9	0	77	5	82	0	0	0	0	9	63	0	72	163
Grand Total	29	0	88	117	0	1136	36	1172	0	0	0	0	66	894	0	960	2249
Apprch %	24.8	0	75.2		0	96.9	3.1		0	0	0		6.9	93.1	0		
Total %	1.3	0	3.9	5.2	0	50.5	1.6	52.1	0	0	0	0	2.9	39.8	0	42.7	
VEHICLES	29	0	88	117	0	1136	36	1172	0	0	0	0	66	892	0	958	2247
% VEHICLES	100	0	100	100	0	100	100	100	0	0	0	0	100	99.8	0	99.8	99.9
TRUCKS	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
% TRUCKS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.2	0.1

Greater Traffic Company

File Name : 19
 Site Code : 00000019
 Start Date : 5/19/2009
 Page No : 2

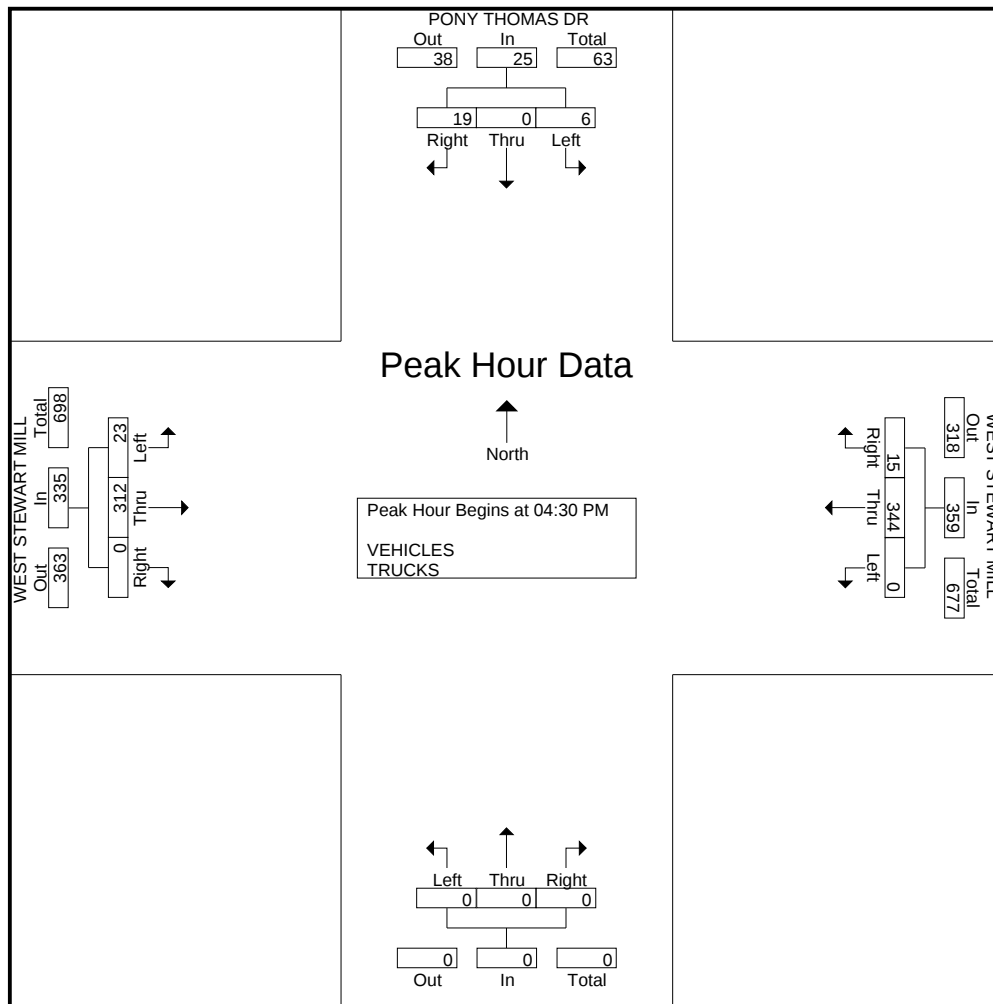
	PONY THOMAS DR Southbound				WEST STEWART MILL Westbound				Northbound				WEST STEWART MILL Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	3	0	8	11	0	63	1	64	0	0	0	0	1	41	0	42	117
07:30 AM	5	0	7	12	0	62	2	64	0	0	0	0	2	45	0	47	123
07:45 AM	1	0	10	11	0	94	3	97	0	0	0	0	0	44	0	44	152
08:00 AM	2	0	7	9	0	82	0	82	0	0	0	0	0	54	0	54	145
Total Volume	11	0	32	43	0	301	6	307	0	0	0	0	3	184	0	187	537
% App. Total	25.6	0	74.4		0	98	2		0	0	0		1.6	98.4	0		
PHF	.550	.000	.800	.896	.000	.801	.500	.791	.000	.000	.000	.000	.375	.852	.000	.866	.883



Greater Traffic Company

File Name : 19
 Site Code : 00000019
 Start Date : 5/19/2009
 Page No : 3

	PONY THOMAS DR Southbound				WEST STEWART MILL Westbound				Northbound				WEST STEWART MILL Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	2	0	5	7	0	105	4	109	0	0	0	0	3	84	0	87	203
04:45 PM	2	0	6	8	0	88	5	93	0	0	0	0	9	69	0	78	179
05:00 PM	2	0	5	7	0	69	2	71	0	0	0	0	6	87	0	93	171
05:15 PM	0	0	3	3	0	82	4	86	0	0	0	0	5	72	0	77	166
Total Volume	6	0	19	25	0	344	15	359	0	0	0	0	23	312	0	335	719
% App. Total	24	0	76		0	95.8	4.2		0	0	0		6.9	93.1	0		
PHF	.750	.000	.792	.781	.000	.819	.750	.823	.000	.000	.000	.000	.639	.897	.000	.901	.885



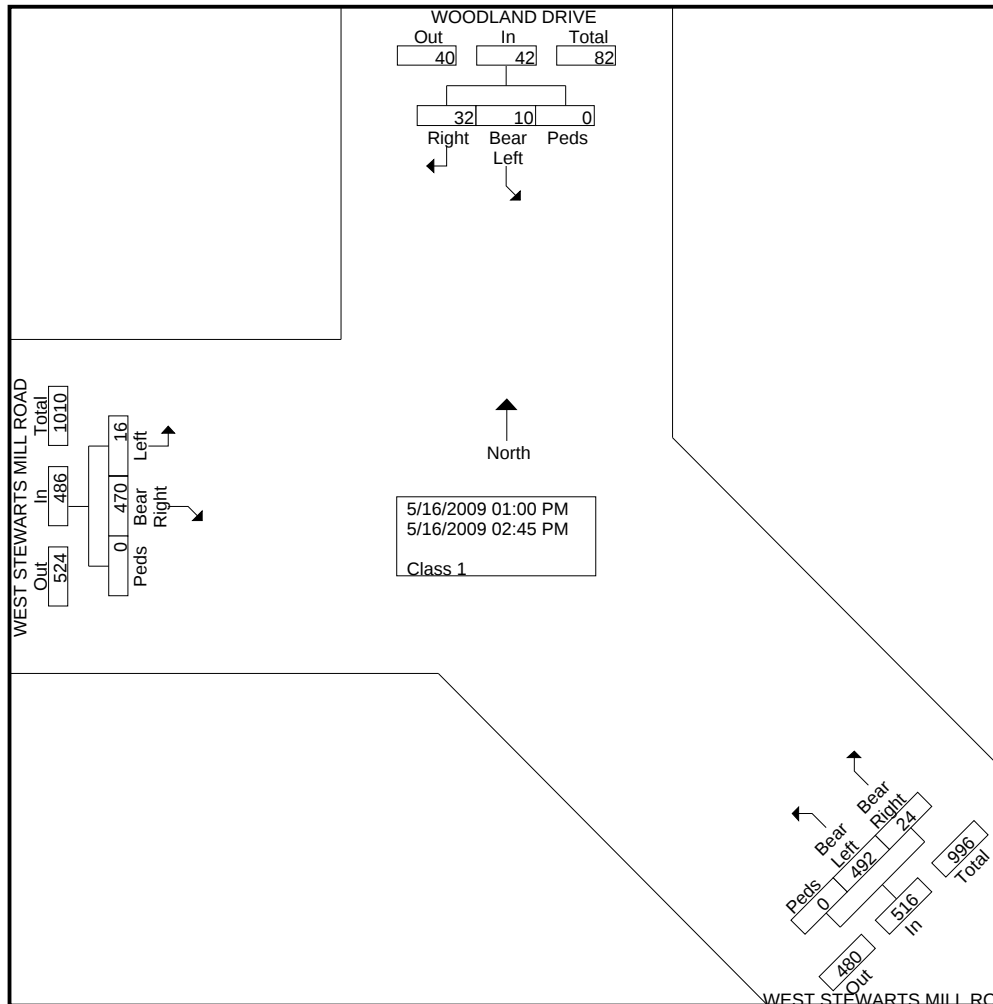
All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : Woodland@WStewartsMillSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 1

Groups Printed- Class 1

	WOODLAND DRIVE Southbound				WEST STEWARTS MILL ROAD Northwestbound				WEST STEWARTS MILL ROAD Eastbound				
Start Time	Right	Bear Left	Peds	App. Total	Bear Right	Bear Left	Peds	App. Total	Bear Right	Left	Peds	App. Total	Int. Total
01:00 PM	6	1	0	7	1	51	0	52	56	2	0	58	117
01:15 PM	2	0	0	2	3	81	0	84	66	3	0	69	155
01:30 PM	1	0	0	1	5	64	0	69	61	1	0	62	132
01:45 PM	7	2	0	9	0	59	0	59	67	1	0	68	136
Total	16	3	0	19	9	255	0	264	250	7	0	257	540
02:00 PM	2	2	0	4	3	61	0	64	55	1	0	56	124
02:15 PM	5	1	0	6	4	59	0	63	62	2	0	64	133
02:30 PM	4	0	0	4	6	64	0	70	60	3	0	63	137
02:45 PM	5	4	0	9	2	53	0	55	43	3	0	46	110
Total	16	7	0	23	15	237	0	252	220	9	0	229	504
Grand Total	32	10	0	42	24	492	0	516	470	16	0	486	1044
Apprch %	76.2	23.8	0		4.7	95.3	0		96.7	3.3	0		
Total %	3.1	1	0	4	2.3	47.1	0	49.4	45	1.5	0	46.6	



All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : Woodland@WStewartsMillSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 2

	WOODLAND DRIVE Southbound				WEST STEWARTS MILL ROAD Northwestbound				WEST STEWARTS MILL ROAD Eastbound				
Start Time	Right	Bear Left	Peds	App. Total	Bear Right	Bear Left	Peds	App. Total	Bear Right	Left	Peds	App. Total	Int. Total

Peak Hour Analysis From 1:00:00 PM to 1:00:00 PM - Peak 1 of 1

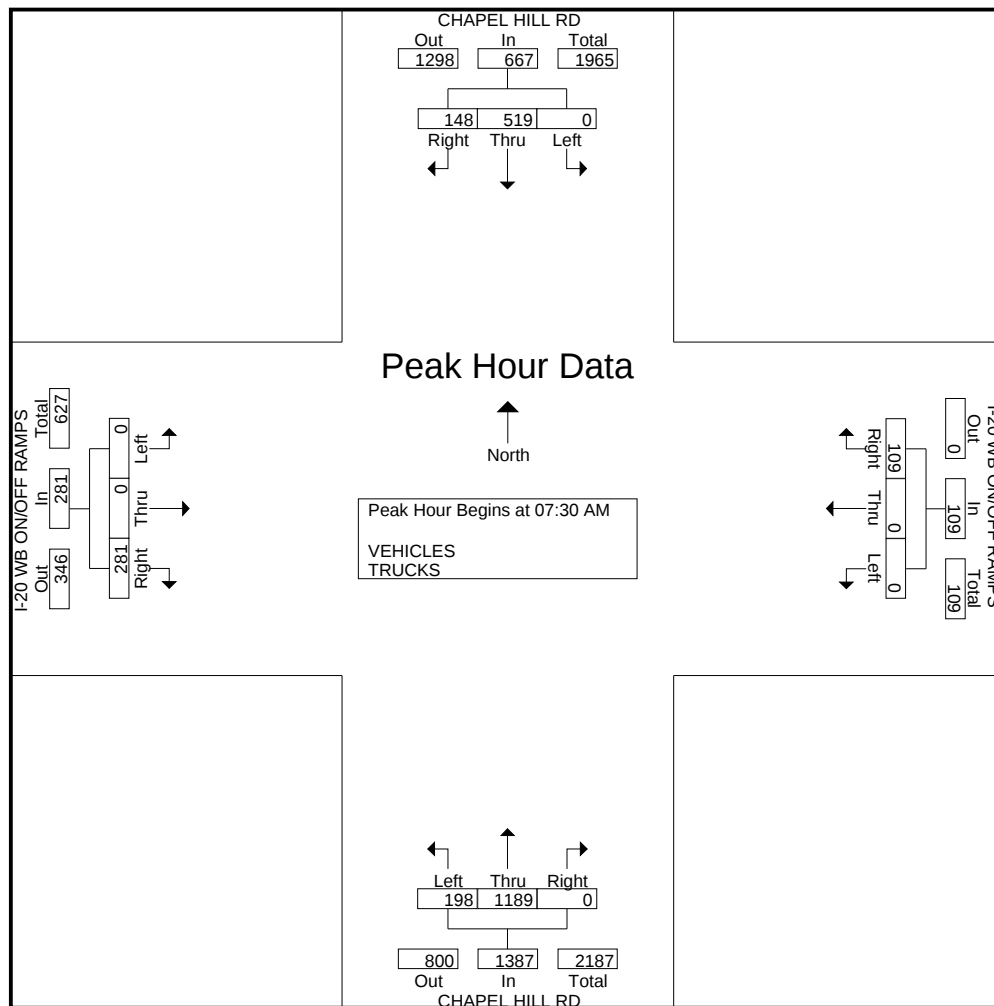
File Name : 20
Site Code : 00000002
Start Date : 5/19/2009
Page No : 1

	CHAPEL HILL RD Southbound				I-20 WB ON/OFF RAMPS Westbound				CHAPEL HILL RD Northbound				I-20 WB ON/OFF RAMPS Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	0	67	15	82	0	0	6	6	23	132	0	155	0	0	29	29	272
06:45 AM	0	74	11	85	0	0	17	17	27	146	0	173	0	0	46	46	321
Total	0	141	26	167	0	0	23	23	50	278	0	328	0	0	75	75	593
07:00 AM	0	66	28	94	0	0	11	11	38	156	0	194	0	0	41	41	340
07:15 AM	0	114	20	134	1	0	17	18	40	203	0	243	0	0	58	58	453
07:30 AM	0	128	32	160	0	0	17	17	46	254	0	300	0	0	62	62	539
07:45 AM	0	141	45	186	0	0	28	28	63	347	0	410	0	0	87	87	711
Total	0	449	125	574	1	0	73	74	187	960	0	1147	0	0	248	248	2043
08:00 AM	0	134	33	167	0	0	31	31	40	321	0	361	0	0	77	77	636
08:15 AM	0	116	38	154	0	0	33	33	49	267	0	316	0	0	55	55	558
*** BREAK ***																	
Total	0	250	71	321	0	0	64	64	89	588	0	677	0	0	132	132	1194
*** BREAK ***																	
04:30 PM	0	220	107	327	0	0	22	22	88	214	0	302	0	0	106	106	757
04:45 PM	0	253	84	337	0	0	31	31	113	182	0	295	0	0	131	131	794
Total	0	473	191	664	0	0	53	53	201	396	0	597	0	0	237	237	1551
05:00 PM	0	327	133	460	0	0	53	53	79	204	0	283	0	0	141	141	937
05:15 PM	0	289	125	414	0	0	41	41	109	190	0	299	0	0	177	177	931
05:30 PM	0	233	134	367	0	0	47	47	123	199	0	322	0	0	170	170	906
05:45 PM	0	246	77	323	0	0	51	51	93	209	0	302	0	0	188	188	864
Total	0	1095	469	1564	0	0	192	192	404	802	0	1206	0	0	676	676	3638
06:00 PM	0	255	81	336	0	0	53	53	118	170	0	288	0	0	209	209	886
06:15 PM	0	245	85	330	0	0	52	52	65	164	0	229	0	0	193	193	804
Grand Total	0	2908	1048	3956	1	0	510	511	1114	3358	0	4472	0	0	1770	1770	10709
Apprch %	0	73.5	26.5		0.2	0	99.8		24.9	75.1	0		0	0	100		
Total %	0	27.2	9.8	36.9	0	0	4.8	4.8	10.4	31.4	0	41.8	0	0	16.5	16.5	
VEHICLES	0	2908	1048	3956	1	0	510	511									

Greater Traffic Company

File Name : 20
 Site Code : 00000002
 Start Date : 5/19/2009
 Page No : 2

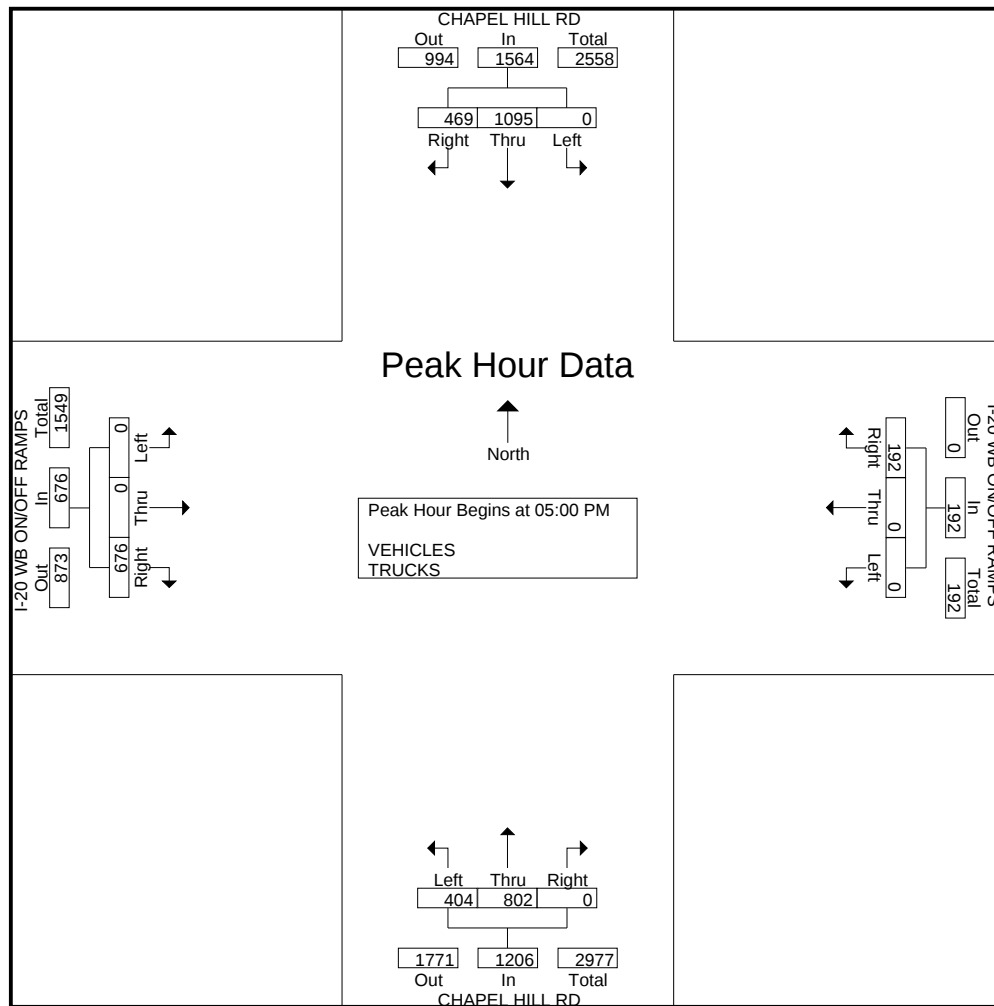
	CHAPEL HILL RD Southbound				I-20 WB ON/OFF RAMP Westbound				CHAPEL HILL RD Northbound				I-20 WB ON/OFF RAMP Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	128	32	160	0	0	17	17	46	254	0	300	0	0	62	62	539
07:45 AM	0	141	45	186	0	0	28	28	63	347	0	410	0	0	87	87	711
08:00 AM	0	134	33	167	0	0	31	31	40	321	0	361	0	0	77	77	636
08:15 AM	0	116	38	154	0	0	33	33	49	267	0	316	0	0	55	55	558
Total Volume	0	519	148	667	0	0	109	109	198	1189	0	1387	0	0	281	281	2444
% App. Total	0	77.8	22.2		0	0	100		14.3	85.7	0		0	0	100		
PHF	.000	.920	.822	.897	.000	.000	.826	.826	.786	.857	.000	.846	.000	.000	.807	.807	.859



Greater Traffic Company

File Name : 20
 Site Code : 00000002
 Start Date : 5/19/2009
 Page No : 3

	CHAPEL HILL RD Southbound				I-20 WB ON/OFF RAMP Westbound				CHAPEL HILL RD Northbound				I-20 WB ON/OFF RAMP Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	327	133	460	0	0	53	53	79	204	0	283	0	0	141	141	937
05:15 PM	0	289	125	414	0	0	41	41	109	190	0	299	0	0	177	177	931
05:30 PM	0	233	134	367	0	0	47	47	123	199	0	322	0	0	170	170	906
05:45 PM	0	246	77	323	0	0	51	51	93	209	0	302	0	0	188	188	864
Total Volume	0	1095	469	1564	0	0	192	192	404	802	0	1206	0	0	676	676	3638
% App. Total	0	70	30		0	0	100		33.5	66.5	0		0	0	100		
PHF	.000	.837	.875	.850	.000	.000	.906	.906	.821	.959	.000	.936	.000	.000	.899	.899	.971



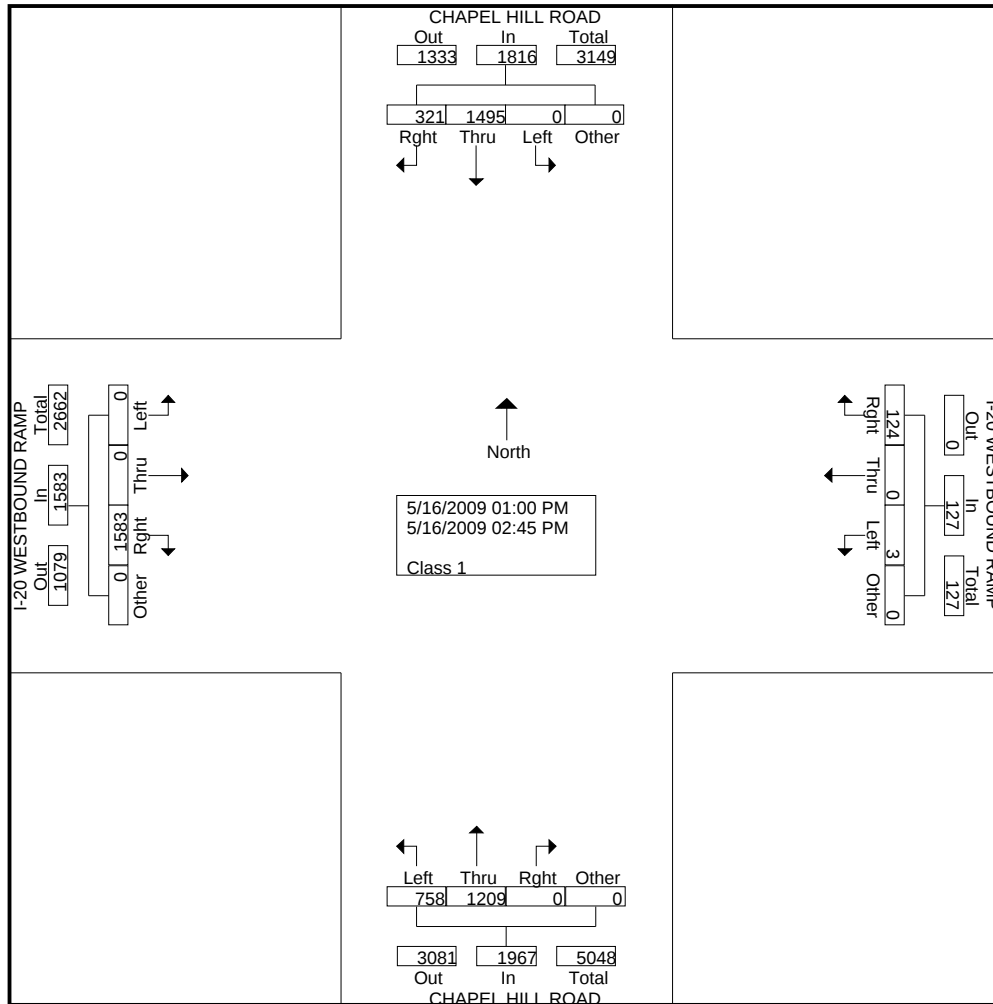
All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : ChapelHill@I-20WBRampSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 1

Groups Printed- Class 1

	CHAPEL HILL ROAD Southbound					I-20 WESTBOUND RAMP Westbound					CHAPEL HILL ROAD Northbound					I-20 WESTBOUND RAMP Eastbound					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
01:00 PM	50	217	0	0	267	9	0	1	0	10	0	184	104	0	288	210	0	0	0	210	775
01:15 PM	39	172	0	0	211	16	0	0	0	16	0	159	79	0	238	205	0	0	0	205	670
01:30 PM	41	209	0	0	250	17	0	0	0	17	0	155	83	0	238	168	0	0	0	168	673
01:45 PM	41	193	0	0	234	17	0	1	0	18	0	162	96	0	258	194	0	0	0	194	704
Total	171	791	0	0	962	59	0	2	0	61	0	660	362	0	1022	777	0	0	0	777	2822
02:00 PM	37	170	0	0	207	11	0	1	0	12	0	138	101	0	239	201	0	0	0	201	659
02:15 PM	32	178	0	0	210	17	0	0	0	17	0	133	92	0	225	206	0	0	0	206	658
02:30 PM	36	180	0	0	216	21	0	0	0	21	0	130	102	0	232	193	0	0	0	193	662
02:45 PM	45	176	0	0	221	16	0	0	0	16	0	148	101	0	249	206	0	0	0	206	692
Total	150	704	0	0	854	65	0	1	0	66	0	549	396	0	945	806	0	0	0	806	2671
Grand Total	321	1495	0	0	1816	124	0	3	0	127	0	1209	758	0	1967	1583	0	0	0	1583	5493
Apprch %	17.7	82.3	0	0		97.6	0	2.4	0		0	61.5	38.5	0		100	0	0	0		
Total %	5.8	27.2	0	0	33.1	2.3	0	0.1	0	2.3	0	22	13.8	0	35.8	28.8	0	0	0	28.8	



All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : ChapelHill@I-20WBRampSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 2

	CHAPEL HILL ROAD Southbound					I-20 WESTBOUND RAMP Westbound					CHAPEL HILL ROAD Northbound					I-20 WESTBOUND RAMP Eastbound					
Start Time	Rgh t	Thr u	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total

Peak Hour Analysis From 1:00:00 PM to 1:00:00 PM - Peak 1 of 1

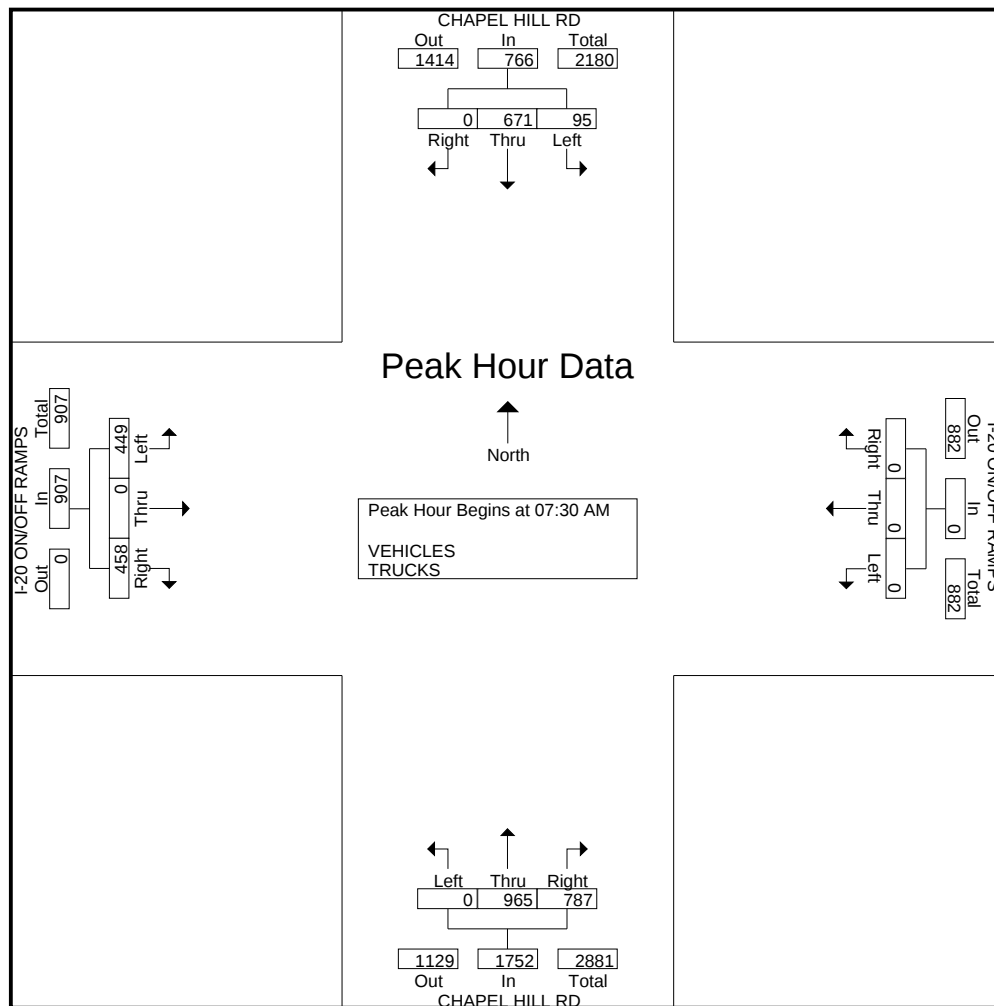
File Name : 21
Site Code : 00000021
Start Date : 5/19/2009
Page No : 1

	CHAPEL HILL RD Southbound				I-20 ON/OFF RAMPS Westbound				CHAPEL HILL RD Northbound				I-20 ON/OFF RAMPS Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	20	77	0	97	0	0	0	0	0	97	144	241	44	0	37	81	419
06:45 AM	17	93	0	110	0	0	0	0	0	124	133	257	54	0	30	84	451
Total	37	170	0	207	0	0	0	0	0	221	277	498	98	0	67	165	870
07:00 AM	20	98	0	118	0	0	0	0	0	111	120	231	76	0	51	127	476
07:15 AM	19	141	0	160	0	0	0	0	0	142	163	305	87	0	83	170	635
07:30 AM	20	165	0	185	0	0	0	0	0	212	180	392	97	0	79	176	753
07:45 AM	23	188	0	211	0	0	0	0	0	326	197	523	80	0	118	198	932
Total	82	592	0	674	0	0	0	0	0	791	660	1451	340	0	331	671	2796
08:00 AM	29	165	0	194	0	0	0	0	0	240	237	477	134	0	131	265	936
08:15 AM	23	153	0	176	0	0	0	0	0	187	173	360	138	0	130	268	804
*** BREAK ***																	
Total	52	318	0	370	0	0	0	0	0	427	410	837	272	0	261	533	1740
*** BREAK ***																	
04:30 PM	29	285	0	314	0	0	0	0	0	242	200	442	52	0	112	164	920
04:45 PM	34	346	0	380	0	0	0	0	0	245	181	426	44	0	87	131	937
Total	63	631	0	694	0	0	0	0	0	487	381	868	96	0	199	295	1857
05:00 PM	22	433	0	455	0	0	0	0	0	238	167	405	54	0	84	138	998
05:15 PM	20	430	0	450	0	0	0	0	0	255	139	394	31	0	64	95	939
05:30 PM	11	379	0	390	0	0	0	0	0	277	123	400	39	0	68	107	897
05:45 PM	17	405	0	422	0	0	0	0	0	270	117	387	25	0	74	99	908
Total	70	1647	0	1717	0	0	0	0	0	1040	546	1586	149	0	290	439	3742
06:00 PM	18	432	0	450	0	0	0	0	0	253	97	350	28	0	76	104	904
06:15 PM	16	410	0	426	0	0	0	0	0	215	99	314	31	0	80	111	851
Grand Total	338	4200	0	4538	0	0	0	0	0	3434	2470	5904	1014	0	1304	2318	12760
Apprch %	7.4	92.6	0		0	0	0		0	58.2	41.8		43.7	0	56.3		
Total %	2.6	32.9	0	35.6	0	0	0	0	0	26.9	19.4	46.3	7.9	0	10.2	18.2	
VEHICLES	338	4200	0	4538	0	0											

Greater Traffic Company

File Name : 21
 Site Code : 00000021
 Start Date : 5/19/2009
 Page No : 2

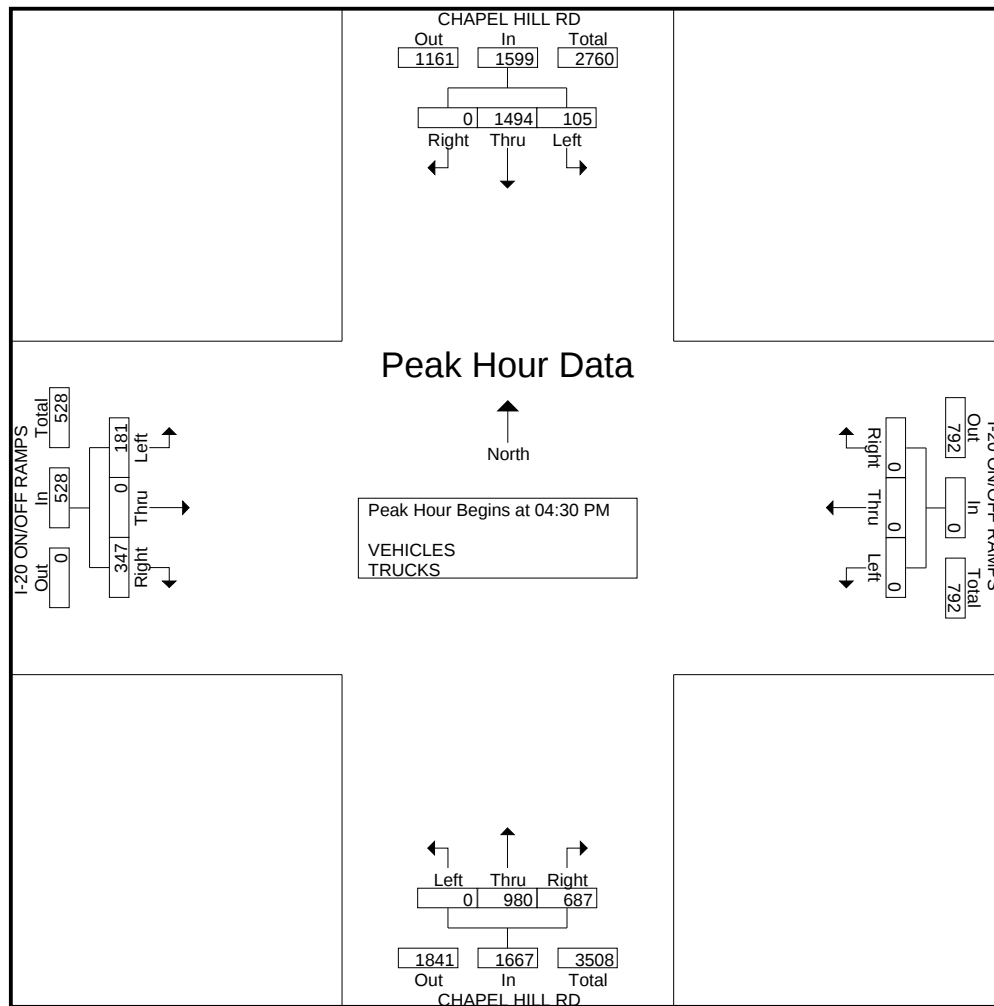
	CHAPEL HILL RD Southbound				I-20 ON/OFF RAMP Westbound				CHAPEL HILL RD Northbound				I-20 ON/OFF RAMP Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	20	165	0	185	0	0	0	0	0	212	180	392	97	0	79	176	753
07:45 AM	23	188	0	211	0	0	0	0	0	326	197	523	80	0	118	198	932
08:00 AM	29	165	0	194	0	0	0	0	0	240	237	477	134	0	131	265	936
08:15 AM	23	153	0	176	0	0	0	0	0	187	173	360	138	0	130	268	804
Total Volume	95	671	0	766	0	0	0	0	0	965	787	1752	449	0	458	907	3425
% App. Total	12.4	87.6	0		0	0	0		0	55.1	44.9		49.5	0	50.5		
PHF	.819	.892	.000	.908	.000	.000	.000	.000	.000	.740	.830	.837	.813	.000	.874	.846	.915



Greater Traffic Company

File Name : 21
 Site Code : 00000021
 Start Date : 5/19/2009
 Page No : 3

	CHAPEL HILL RD Southbound				I-20 ON/OFF RAMP Westbound				CHAPEL HILL RD Northbound				I-20 ON/OFF RAMP Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	29	285	0	314	0	0	0	0	0	242	200	442	52	0	112	164	920
04:45 PM	34	346	0	380	0	0	0	0	0	245	181	426	44	0	87	131	937
05:00 PM	22	433	0	455	0	0	0	0	0	238	167	405	54	0	84	138	998
05:15 PM	20	430	0	450	0	0	0	0	0	255	139	394	31	0	64	95	939
Total Volume	105	1494	0	1599	0	0	0	0	0	980	687	1667	181	0	347	528	3794
% App. Total	6.6	93.4	0		0	0	0		0	58.8	41.2		34.3	0	65.7		
PHF	.772	.863	.000	.879	.000	.000	.000	.000	.000	.961	.859	.943	.838	.000	.775	.805	.950



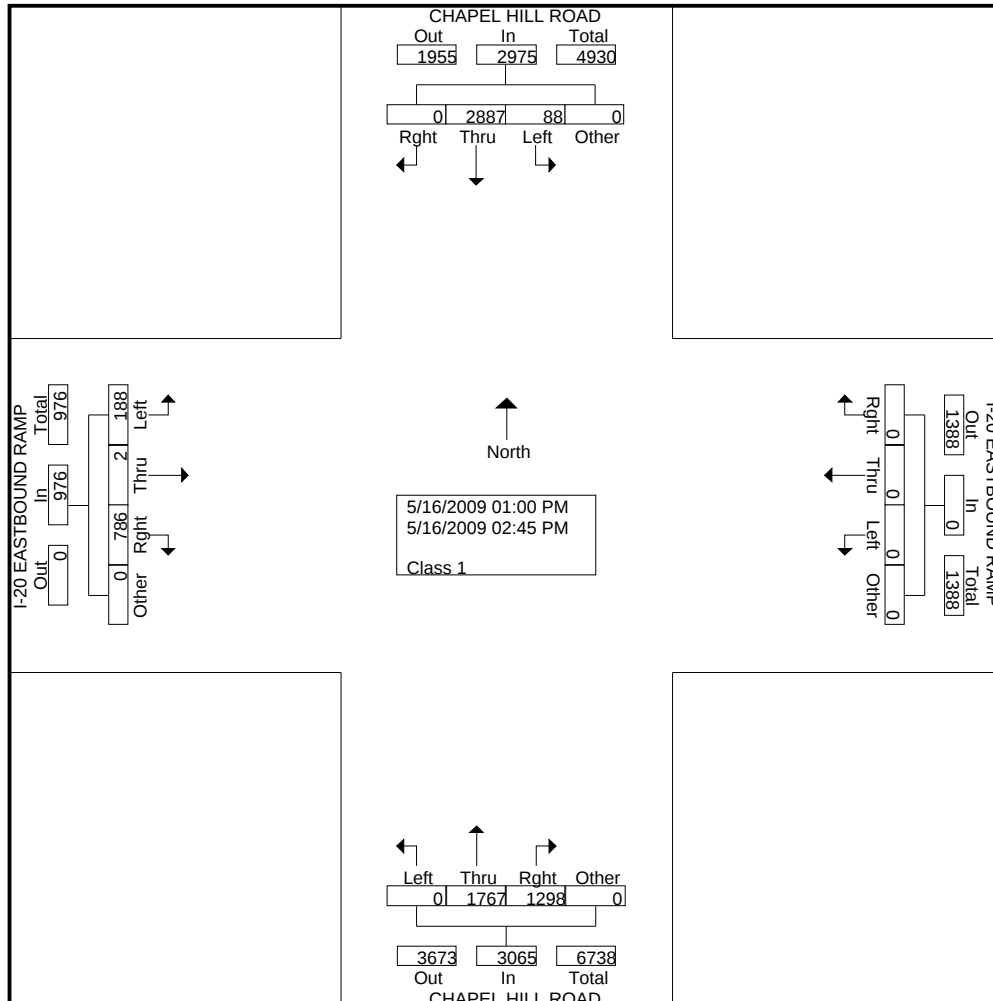
All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : ChapelHill@I-20EBRampSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 1

Groups Printed- Class 1

	CHAPEL HILL ROAD Southbound					I-20 EASTBOUND RAMP Westbound					CHAPEL HILL ROAD Northbound					I-20 EASTBOUND RAMP Eastbound					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
01:00 PM	0	393	19	0	412	0	0	0	0	0	163	264	0	0	427	80	2	26	0	108	947
01:15 PM	0	357	13	0	370	0	0	0	0	0	166	215	0	0	381	82	0	16	0	98	849
01:30 PM	0	360	11	0	371	0	0	0	0	0	157	203	0	0	360	100	0	36	0	136	867
01:45 PM	0	333	11	0	344	0	0	0	0	0	183	225	0	0	408	110	0	25	0	135	887
Total	0	1443	54	0	1497	0	0	0	0	0	669	907	0	0	1576	372	2	103	0	477	3550
02:00 PM	0	364	8	0	372	0	0	0	0	0	159	221	0	0	380	104	0	18	0	122	874
02:15 PM	0	369	4	0	373	0	0	0	0	0	168	202	0	0	370	117	0	13	0	130	873
02:30 PM	0	357	7	0	364	0	0	0	0	0	166	205	0	0	371	96	0	19	0	115	850
02:45 PM	0	354	15	0	369	0	0	0	0	0	136	232	0	0	368	97	0	35	0	132	869
Total	0	1444	34	0	1478	0	0	0	0	0	629	860	0	0	1489	414	0	85	0	499	3466
Grand Total	0	2887	88	0	2975	0	0	0	0	0	1298	1767	0	0	3065	786	2	188	0	976	7016
Apprch %	0	97	3	0		0	0	0	0		42.3	57.7	0	0		80.5	0.2	19.3	0		
Total %	0	41.1	1.3	0	42.4	0	0	0	0	0	18.5	25.2	0	0	43.7	11.2	0	2.7	0	13.9	

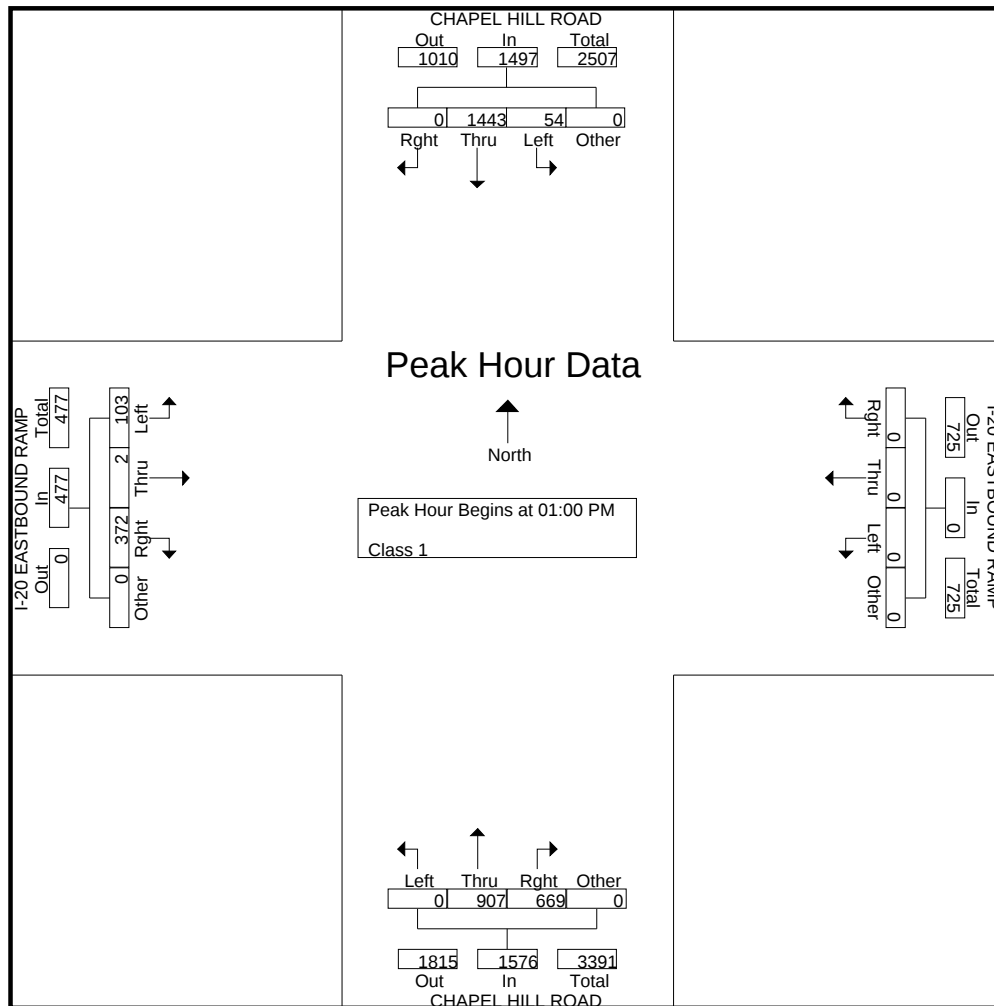


All Traffic Data Services, Inc

1336 Farmer Road
Conyers, Ga 30012
404-374-1283

File Name : ChapelHill@I-20EBRampSat
Site Code : 00000000
Start Date : 5/16/2009
Page No : 2

	CHAPEL HILL ROAD Southbound					I-20 EASTBOUND RAMP Westbound					CHAPEL HILL ROAD Northbound					I-20 EASTBOUND RAMP Eastbound					
Start Time	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Int. Total
Peak Hour Analysis From 1:00:00 PM to 1:00:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 1:00:00 PM																					
1:00:00 PM	0	207	11	0	218	0	0	0	0	0	88	155	0	0	243	43	0	14	0	57	518
01:01 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:02 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:03 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	207	11	0	218	0	0	0	0	0	88	155	0	0	243	43	0	14	0	57	518
% App. Total	0	95	5	0		0	0	0	0		36.2	63.8	0	0		75.4	0	24.6	0		
PHF	.000	.250	.250	.000	.250	.000	.000	.000	.000	.000	.250	.250	.000	.000	.250	.250	.000	.250	.000	.250	.250



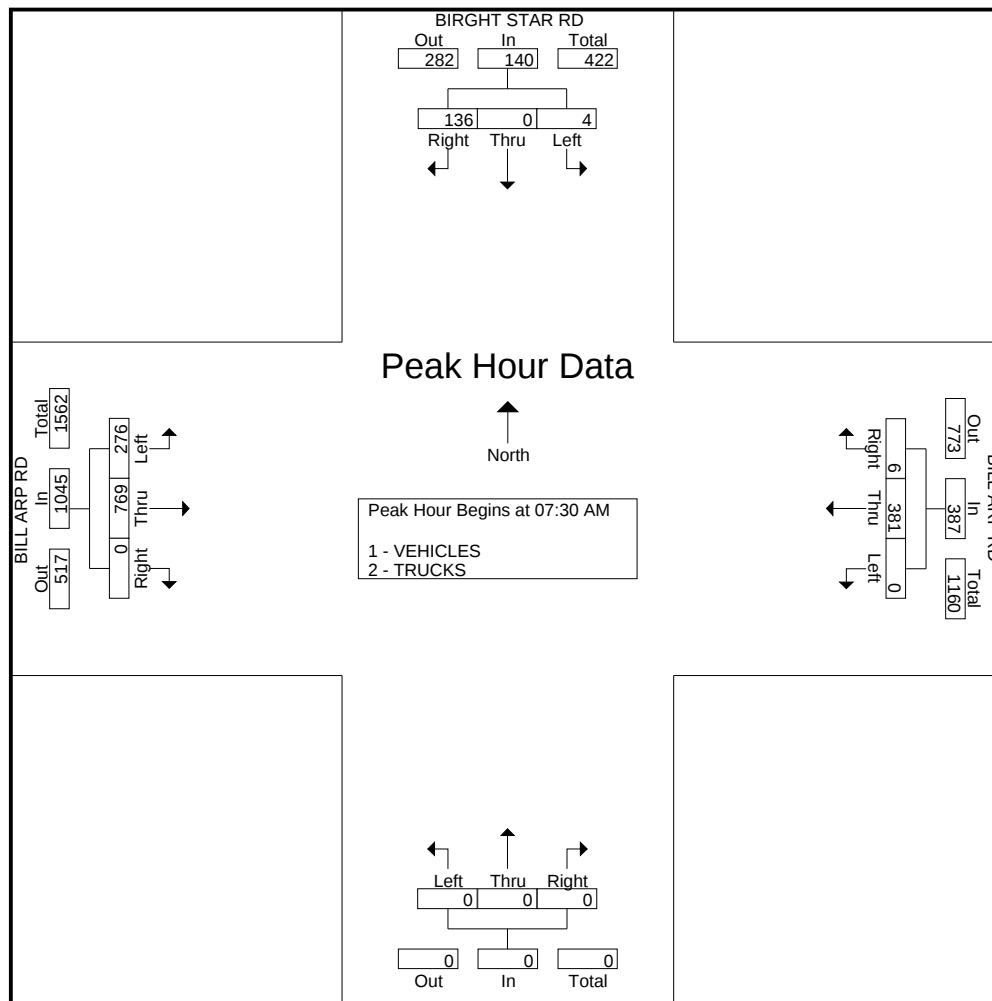
File Name : 22
Site Code : 00000022
Start Date : 5/14/2009
Page No : 1

	BIRGHT STAR RD Southbound				BILL ARP RD Westbound				Northbound				BILL ARP RD Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	0	0	13	13	0	34	0	34	0	0	0	0	23	92	0	115	162
06:45 AM	0	0	14	14	0	48	0	48	0	0	0	0	27	98	0	125	187
Total	0	0	27	27	0	82	0	82	0	0	0	0	50	190	0	240	349
07:00 AM	1	0	21	22	0	50	0	50	0	0	0	0	41	133	0	174	246
07:15 AM	1	0	31	32	0	77	0	77	0	0	0	0	31	137	0	168	277
07:30 AM	0	0	38	38	0	83	3	86	0	0	0	0	66	193	0	259	383
07:45 AM	0	0	36	36	0	95	2	97	0	0	0	0	69	194	0	263	396
Total	2	0	126	128	0	305	5	310	0	0	0	0	207	657	0	864	1302
08:00 AM	2	0	37	39	0	103	1	104	0	0	0	0	72	188	0	260	403
08:15 AM	2	0	25	27	0	100	0	100	0	0	0	0	69	194	0	263	390
*** BREAK ***																	
Total	4	0	62	66	0	203	1	204	0	0	0	0	141	382	0	523	793
*** BREAK ***																	
04:30 PM	3	0	27	30	0	142	1	143	0	0	0	0	50	112	0	162	335
04:45 PM	1	0	37	38	0	169	3	172	0	0	0	0	50	122	0	172	382
Total	4	0	64	68	0	311	4	315	0	0	0	0	100	234	0	334	717
05:00 PM	0	0	40	40	0	147	0	147	0	0	0	0	39	77	0	116	303
05:15 PM	0	0	47	47	0	188	0	188	0	0	0	0	33	129	0	162	397
05:30 PM	1	0	43	44	0	221	1	222	0	0	0	0	40	121	0	161	427
05:45 PM	0	0	36	36	0	223	2	225	0	0	0	0	48	117	0	165	426
Total	1	0	166	167	0	779	3	782	0	0	0	0	160	444	0	604	1553
06:00 PM	1	0	30	31	0	204	2	206	0	0	0	0	41	101	0	142	379
06:15 PM	0	0	48	48	0	176	3	179	0	0	0	0	37	127	0	164	391
Grand Total	12	0	523	535	0	2060	18	2078	0	0	0	0	736	2135	0	2871	5484
Apprch %	2.2	0	97.8		0	99.1	0.9		0	0	0		25.6	74.4	0		
Total %	0.2	0	9.5	9.8	0	37.6	0.3	37.9	0	0	0	0	13.4	38.9	0	52.4	
1 - VEHICLES	12	0	523	535	0	2060	18	2078	0	0	0	0	736	2135	0	2871	5484
% 1 - VEHICLES	100	0	100	100	0	100	100	100	0	0	0	0	100	100	0	100	

Greater Traffic Company

File Name : 22
 Site Code : 00000022
 Start Date : 5/14/2009
 Page No : 2

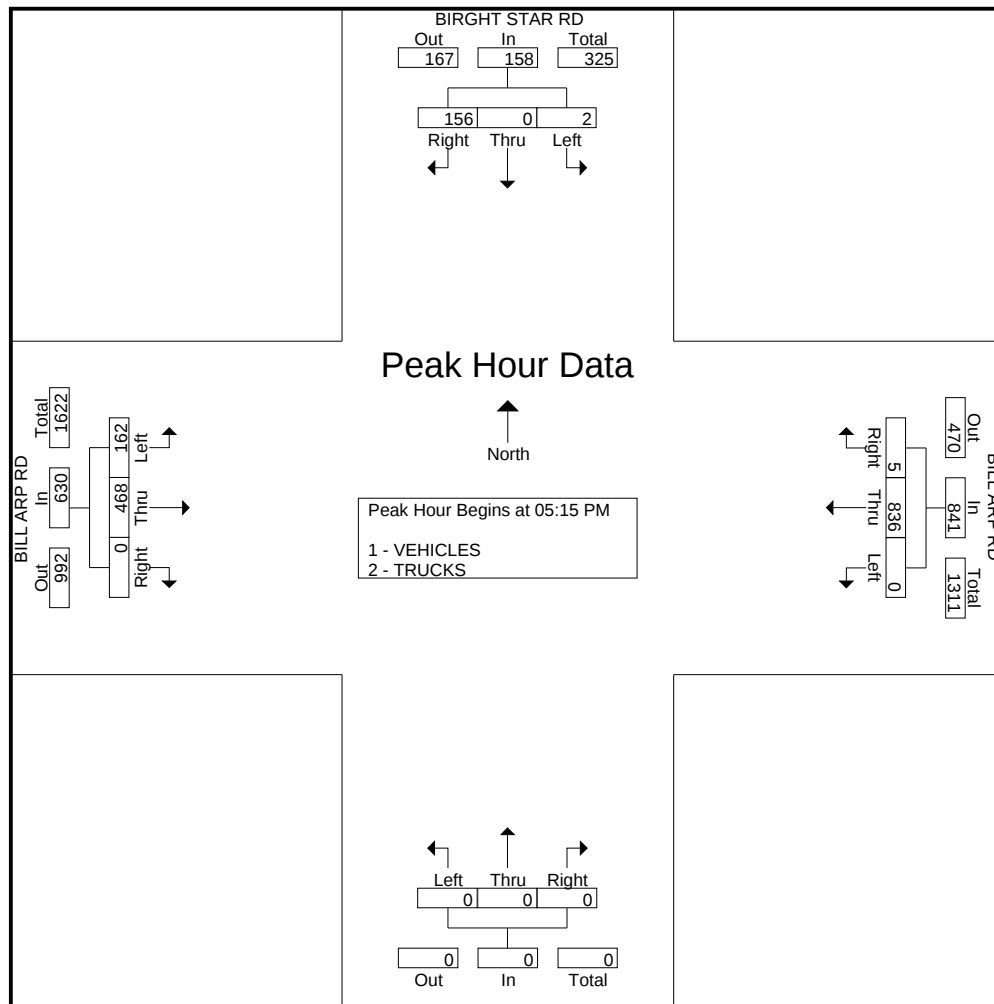
	BIRGHT STAR RD Southbound				BILL ARP RD Westbound				Northbound				BILL ARP RD Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	38	38	0	83	3	86	0	0	0	0	66	193	0	259	383
07:45 AM	0	0	36	36	0	95	2	97	0	0	0	0	69	194	0	263	396
08:00 AM	2	0	37	39	0	103	1	104	0	0	0	0	72	188	0	260	403
08:15 AM	2	0	25	27	0	100	0	100	0	0	0	0	69	194	0	263	390
Total Volume	4	0	136	140	0	381	6	387	0	0	0	0	276	769	0	1045	1572
% App. Total	2.9	0	97.1		0	98.4	1.6		0	0	0		26.4	73.6	0		
PHF	.500	.000	.895	.897	.000	.925	.500	.930	.000	.000	.000	.000	.958	.991	.000	.993	.975



Greater Traffic Company

File Name : 22
 Site Code : 00000022
 Start Date : 5/14/2009
 Page No : 3

	BIRGHT STAR RD Southbound				BILL ARP RD Westbound				Northbound				BILL ARP RD Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	0	0	47	47	0	188	0	188	0	0	0	0	33	129	0	162	397
05:30 PM	1	0	43	44	0	221	1	222	0	0	0	0	40	121	0	161	427
05:45 PM	0	0	36	36	0	223	2	225	0	0	0	0	48	117	0	165	426
06:00 PM	1	0	30	31	0	204	2	206	0	0	0	0	41	101	0	142	379
Total Volume	2	0	156	158	0	836	5	841	0	0	0	0	162	468	0	630	1629
% App. Total	1.3	0	98.7		0	99.4	0.6		0	0	0		25.7	74.3	0		
PHF	.500	.000	.830	.840	.000	.937	.625	.934	.000	.000	.000	.000	.844	.907	.000	.955	.954



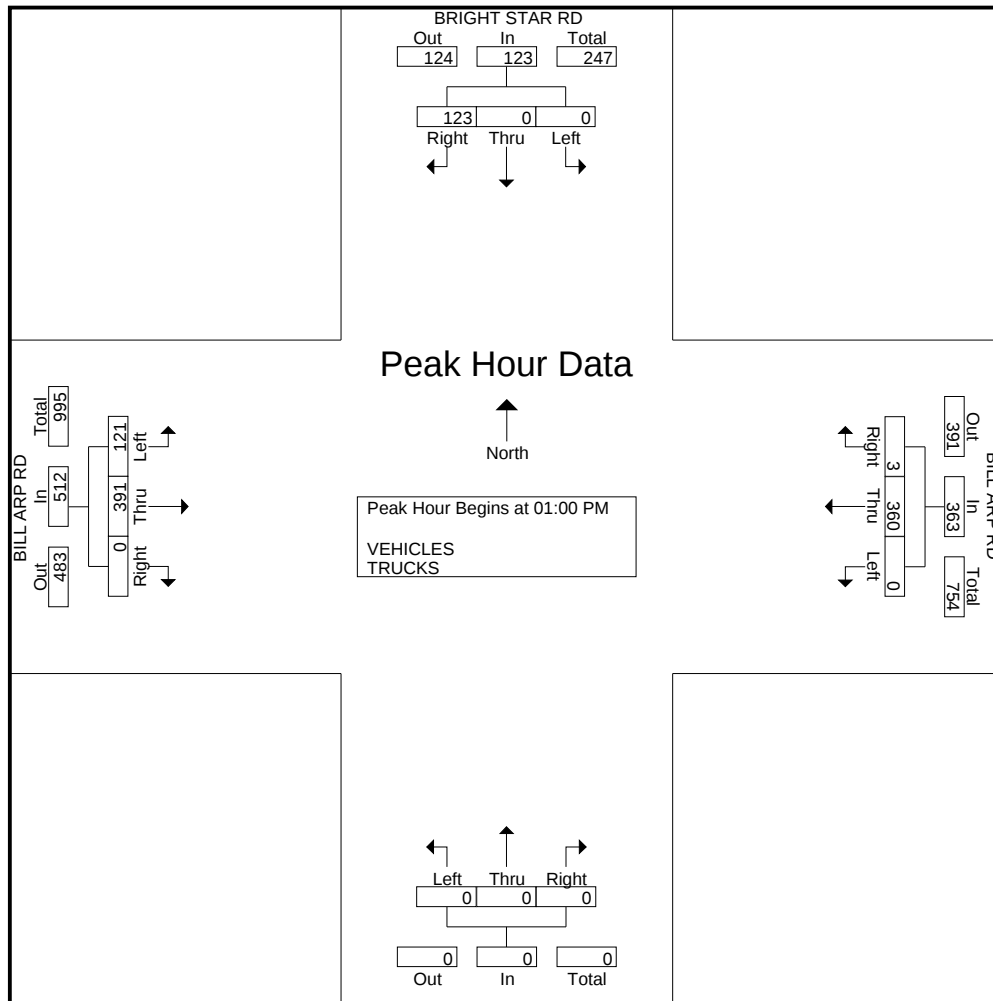
File Name : 22SAT
Site Code : 00002222
Start Date : 5/16/2009
Page No : 1

[illegible]

Greater Traffic Company

File Name : 22SAT
 Site Code : 00002222
 Start Date : 5/16/2009
 Page No : 2

	BRIGHT STAR RD Southbound				BILL ARP RD Westbound				Northbound				BILL ARP RD Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 01:00 PM to 02:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	30	30	0	102	0	102	0	0	0	0	32	113	0	145	277
01:15 PM	0	0	35	35	0	97	0	97	0	0	0	0	31	86	0	117	249
01:30 PM	0	0	33	33	0	91	0	91	0	0	0	0	29	87	0	116	240
01:45 PM	0	0	25	25	0	70	3	73	0	0	0	0	29	105	0	134	232
Total Volume	0	0	123	123	0	360	3	363	0	0	0	0	121	391	0	512	998
% App. Total	0	0	100		0	99.2	0.8		0	0	0		23.6	76.4	0		
PHF	.000	.000	.879	.879	.000	.882	.250	.890	.000	.000	.000	.000	.945	.865	.000	.883	.901



EXISTING OPERATIONS

HCM Unsignalized Intersection Capacity Analysis

1: Bankhead Hwy US78 & John West Rd

AM Existing

						
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	476	105	7	301	72	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	517	114	8	327	78	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			632		860	517
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			632		860	517
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		76	98
cM capacity (veh/h)			951		324	558
Direction, Lane #	EB 1	EB 2	WB 1	NW 1		
Volume Total	517	114	335	89		
Volume Left	0	0	8	78		
Volume Right	0	114	0	11		
cSH	1700	1700	951	341		
Volume to Capacity	0.30	0.07	0.01	0.26		
Queue Length 95th (ft)	0	0	1	26		
Control Delay (s)	0.0	0.0	0.3	19.2		
Lane LOS			A	C		
Approach Delay (s)	0.0		0.3	19.2		
Approach LOS				C		
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			36.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Bankhead Hwy US 78 & Bill Arp Rd Hwy 5

AM Existing

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Volume (vph)	479	107	234	358	66	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.92	
Flt Protected	1.00	1.00	0.95	1.00	0.98	
Satd. Flow (prot)	1863	1583	1770	1863	1677	
Flt Permitted	1.00	1.00	0.22	1.00	0.98	
Satd. Flow (perm)	1863	1583	414	1863	1677	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	521	116	254	389	72	112
RTOR Reduction (vph)	0	72	0	0	73	0
Lane Group Flow (vph)	521	44	254	389	111	0
Turn Type		Perm	pm+pt			
Protected Phases	6		5	2	4	
Permitted Phases		6	2			
Actuated Green, G (s)	24.4	24.4	43.1	43.1	8.7	
Effective Green, g (s)	24.4	24.4	43.1	43.1	8.7	
Actuated g/C Ratio	0.38	0.38	0.68	0.68	0.14	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	
Lane Grp Cap (vph)	712	605	550	1259	229	
v/s Ratio Prot	c0.28		c0.09	0.21	c0.07	
v/s Ratio Perm		0.03	0.22			
v/c Ratio	0.73	0.07	0.46	0.31	0.48	
Uniform Delay, d1	16.9	12.5	6.8	4.2	25.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.7	0.1	0.2	0.3	0.6	
Delay (s)	21.6	12.6	7.0	4.5	26.1	
Level of Service	C	B	A	A	C	
Approach Delay (s)	20.0			5.5	26.1	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay			14.4		HCM Level of Service	B
HCM Volume to Capacity ratio			0.62			
Actuated Cycle Length (s)			63.8		Sum of lost time (s)	18.0
Intersection Capacity Utilization			63.2%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Bankhead Hwy US78 & Rose Ave

AM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	438	40	76	234	22	15	190	129	97	252	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.95			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1770	1840		1770	1839			1762			1824	
Flt Permitted	0.59	1.00		0.19	1.00			0.98			0.74	
Satd. Flow (perm)	1097	1840		358	1839			1723			1363	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	476	43	83	254	24	16	207	140	105	274	24
RTOR Reduction (vph)	0	3	0	0	4	0	0	15	0	0	2	0
Lane Group Flow (vph)	23	516	0	83	274	0	0	348	0	0	401	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases	6			5		2	8			4		
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	35.4	35.4		48.3	48.3			36.3			36.3	
Effective Green, g (s)	35.4	35.4		48.3	48.3			36.3			36.3	
Actuated g/C Ratio	0.37	0.37		0.51	0.51			0.38			0.38	
Clearance Time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Vehicle Extension (s)	6.0	6.0		3.0	6.0			3.0			8.0	
Lane Grp Cap (vph)	410	688		299	938			660			522	
v/s Ratio Prot	c0.28			0.02		c0.15						
v/s Ratio Perm	0.02			0.12			0.20			c0.29		
v/c Ratio	0.06	0.75		0.28	0.29			0.53			0.77	
Uniform Delay, d1	19.0	25.8		15.3	13.4			22.6			25.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.2	6.0		0.5	0.5			0.8			10.0	
Delay (s)	19.1	31.8		15.8	13.8			23.3			35.5	
Level of Service	B	C		B	B			C			D	
Approach Delay (s)	31.3			14.3			23.3			35.5		
Approach LOS	C			B			C			D		
Intersection Summary												
HCM Average Control Delay			26.9		HCM Level of Service			C				
HCM Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			94.7		Sum of lost time (s)			15.2				
Intersection Capacity Utilization			85.2%		ICU Level of Service			E				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Bill Arp Rd Hwy 5 & Rose Ave

AM Existing

						
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Volume (veh/h)	346	553	27	476	243	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	376	601	29	517	264	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	371					
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			376		952	376
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			276		903	276
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		4	96
cM capacity (veh/h)			1182		275	701
Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SW 1	
Volume Total	376	601	29	517	295	
Volume Left	0	0	29	0	264	
Volume Right	0	601	0	0	30	
cSH	1700	1700	1182	1700	294	
Volume to Capacity	0.22	0.35	0.02	0.30	1.00	
Queue Length 95th (ft)	0	0	2	0	264	
Control Delay (s)	0.0	0.0	8.1	0.0	92.1	
Lane LOS			A		F	
Approach Delay (s)	0.0		0.4		92.1	
Approach LOS					F	
Intersection Summary						
Average Delay			15.1			
Intersection Capacity Utilization			46.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

5: Concourse Pkwy & Bill Arp Rd Hwy 5

AM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	175	0	38	0	882	105	32	672	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5		6.5	6.5	6.0	6.5	
Lane Util. Factor				0.95	0.95	1.00		0.95	1.00	1.00	0.95	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.95	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1681	1681	1583		3539	1583	1770	3539	
Flt Permitted				0.95	0.95	1.00		1.00	1.00	0.26	1.00	
Satd. Flow (perm)				1681	1681	1583		3539	1583	483	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	190	0	41	0	959	114	35	730	0
RTOR Reduction (vph)	0	0	0	0	0	37	0	0	31	0	0	0
Lane Group Flow (vph)	0	0	0	95	95	4	0	959	83	35	730	0
Turn Type	Split		Perm	Split		Perm	pm+pt		Perm	pm+pt		
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases			4			3	6		6		2	
Actuated Green, G (s)				13.2	13.2	13.2		94.8	94.8	103.8	103.8	
Effective Green, g (s)				13.2	13.2	13.2		94.8	94.8	103.8	103.8	
Actuated g/C Ratio				0.10	0.10	0.10		0.73	0.73	0.80	0.80	
Clearance Time (s)				6.5	6.5	6.5		6.5	6.5	6.0	6.5	
Vehicle Extension (s)				1.0	1.0	1.0		5.0	5.0	1.0	5.0	
Lane Grp Cap (vph)				171	171	161		2581	1154	415	2826	
v/s Ratio Prot				c0.06	0.06			c0.27		0.00	c0.21	
v/s Ratio Perm						0.00			0.05	0.07		
v/c Ratio				0.56	0.56	0.03		0.37	0.07	0.08	0.26	
Uniform Delay, d1				55.6	55.6	52.6		6.5	5.0	3.4	3.3	
Progression Factor				1.00	1.00	1.00		0.67	0.74	1.00	1.00	
Incremental Delay, d2				2.2	2.2	0.0		0.4	0.1	0.0	0.2	
Delay (s)				57.8	57.8	52.6		4.7	3.8	3.4	3.5	
Level of Service				E	E	D		A	A	A	A	
Approach Delay (s)		0.0			56.9			4.6			3.5	
Approach LOS		A			E			A			A	
Intersection Summary												
HCM Average Control Delay			10.1			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			19.5			
Intersection Capacity Utilization			43.3%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Bill Arp Rd Hwy 5 & I-20 WB Ramp

AM Existing

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	 				 			 			
Volume (vph)	306	0	244	116	730	0	0	753	79	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	6.5	6.0			6.0			
Lane Util. Factor	0.97		1.00	1.00	0.95			0.95			
Frt	1.00		0.85	1.00	1.00			0.99			
Flt Protected	0.95		1.00	0.95	1.00			1.00			
Satd. Flow (prot)	3433		1583	1770	3539			3489			
Flt Permitted	0.95		1.00	0.26	1.00			1.00			
Satd. Flow (perm)	3433		1583	480	3539			3489			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	333	0	265	126	793	0	0	818	86	0	0
RTOR Reduction (vph)	0	0	207	0	0	0	0	4	0	0	0
Lane Group Flow (vph)	333	0	58	126	793	0	0	900	0	0	0
Turn Type	Prot		custom	pm+pt							
Protected Phases	8			1	6			2			
Permitted Phases			8	6							
Actuated Green, G (s)	18.1		18.1	100.4	100.4			85.0			
Effective Green, g (s)	18.1		18.1	100.4	100.4			85.0			
Actuated g/C Ratio	0.14		0.14	0.77	0.77			0.65			
Clearance Time (s)	5.5		5.5	6.5	6.0			6.0			
Vehicle Extension (s)	3.0		3.0	4.0	5.0			5.0			
Lane Grp Cap (vph)	478		220	459	2733			2281			
v/s Ratio Prot	c0.10			0.02	c0.22			c0.26			
v/s Ratio Perm			0.04	0.19							
v/c Ratio	0.70		0.26	0.27	0.29			0.39			
Uniform Delay, d1	53.3		50.0	5.0	4.3			10.5			
Progression Factor	1.00		1.00	0.83	0.72			1.13			
Incremental Delay, d2	4.4		0.6	0.4	0.3			0.5			
Delay (s)	57.7		50.6	4.6	3.4			12.4			
Level of Service	E		D	A	A			B			
Approach Delay (s)		54.6			3.6			12.4		0.0	
Approach LOS		D			A			B		A	
Intersection Summary											
HCM Average Control Delay			19.4		HCM Level of Service			B			
HCM Volume to Capacity ratio			0.44								
Actuated Cycle Length (s)			130.0		Sum of lost time (s)			17.5			
Intersection Capacity Utilization			95.2%		ICU Level of Service			F			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

7: I-20 EB Off Ramp & Bill Arp Rd Hwy 5

AM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (vph)	205	0	218	0	0	0	0	626	795	370	673	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Lane Util. Factor	1.00		1.00					0.95	1.00	1.00	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770		1583					3539	1583	1770	3539	
Flt Permitted	0.95		1.00					1.00	1.00	0.33	1.00	
Satd. Flow (perm)	1770		1583					3539	1583	608	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	223	0	237	0	0	0	0	680	864	402	732	0
RTOR Reduction (vph)	0	0	199	0	0	0	0	0	271	0	0	0
Lane Group Flow (vph)	223	0	38	0	0	0	0	680	593	402	732	0
Turn Type	Prot	custom						Perm			pm+pt	
Protected Phases	4							6	5			2
Permitted Phases				4					6			2
Actuated Green, G (s)	20.9			20.9				73.8	73.8	97.6	97.6	
Effective Green, g (s)	20.9			20.9				73.8	73.8	97.6	97.6	
Actuated g/C Ratio	0.16			0.16				0.57	0.57	0.75	0.75	
Clearance Time (s)	5.5			5.5				6.0	6.0	5.5	6.0	
Vehicle Extension (s)	3.0			3.0				5.0	5.0	3.5	5.0	
Lane Grp Cap (vph)	285			254				2009	899	620	2657	
v/s Ratio Prot	c0.13							0.19			c0.09	0.21
v/s Ratio Perm				0.02					0.37		c0.40	
v/c Ratio	0.78			0.15				0.34	0.66	0.65	0.28	
Uniform Delay, d1	52.4			46.9				15.0	19.4	6.8	5.1	
Progression Factor	1.00			1.00				0.63	0.70	2.02	1.29	
Incremental Delay, d2	13.1			0.3				0.3	2.1	2.3	0.2	
Delay (s)	65.4			47.2				9.7	15.7	16.0	6.8	
Level of Service	E			D				A	B	B	A	
Approach Delay (s)	56.0					0.0	13.1					10.1
Approach LOS	E					A	B					B
Intersection Summary												
HCM Average Control Delay	18.3			HCM Level of Service					B			
HCM Volume to Capacity ratio	0.66											
Actuated Cycle Length (s)	130.0			Sum of lost time (s)					11.0			
Intersection Capacity Utilization	95.2%			ICU Level of Service					F			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Douglas Blvd & Bill Arp Rd Hwy 5

AM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	352	78	25	88	109	77	36	968	152	180	564	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Flt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3411		1770	1863	1583	1770	3467		1770	3411	
Flt Permitted	0.41	1.00		0.68	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	772	3411		1269	1863	1583	1770	3467		1770	3411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	383	85	27	96	118	84	39	1052	165	196	613	196
RTOR Reduction (vph)	0	21	0	0	0	74	0	10	0	0	23	0
Lane Group Flow (vph)	383	91	0	96	118	10	39	1207	0	196	786	0
Turn Type	pm+pt			pm+pt		Perm	Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8		8						
Actuated Green, G (s)	45.3	30.3		25.5	15.5	15.5	8.0	52.2		17.5	61.7	
Effective Green, g (s)	45.3	30.3		25.5	15.5	15.5	8.0	52.2		17.5	61.7	
Actuated g/C Ratio	0.35	0.23		0.20	0.12	0.12	0.06	0.40		0.13	0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	459	795		287	222	189	109	1392		238	1619	
v/s Ratio Prot	c0.16	0.03		0.03	0.06		0.02	c0.35		c0.11	0.23	
v/s Ratio Perm	c0.13			0.04		0.01						
v/c Ratio	0.83	0.11		0.33	0.53	0.05	0.36	0.87		0.82	0.49	
Uniform Delay, d1	35.6	39.3		44.4	53.8	50.7	58.5	35.7		54.7	23.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.36	0.56	
Incremental Delay, d2	12.8	0.1		0.9	4.4	0.2	2.7	7.5		20.3	1.0	
Delay (s)	48.4	39.4		45.4	58.3	51.0	61.3	43.2		94.5	14.2	
Level of Service	D	D		D	E	D	E	D		F	B	
Approach Delay (s)		46.4			52.0			43.8			29.8	
Approach LOS		D			D			D			C	
Intersection Summary												
HCM Average Control Delay			40.4			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			80.2%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Stewart Pkwy & Bill Arp Rd Hwy 5

AM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	86	40	53	105	175	93	1028	22	123	503	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.70	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1298	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	93	43	58	114	190	101	1117	24	134	547	64
RTOR Reduction (vph)	0	0	33	0	0	171	0	0	8	0	0	30
Lane Group Flow (vph)	116	93	10	58	114	19	101	1117	16	134	547	34
Turn Type	Prot		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4			8		1	6		5		2
Permitted Phases			4	8		8			6			2
Actuated Green, G (s)	13.3	33.6	33.6	14.3	14.3	14.3	13.3	71.5	71.5	15.9	74.6	74.6
Effective Green, g (s)	13.3	33.6	33.6	14.3	14.3	14.3	13.3	71.5	71.5	15.9	74.6	74.6
Actuated g/C Ratio	0.10	0.24	0.24	0.10	0.10	0.10	0.10	0.51	0.51	0.11	0.53	0.53
Clearance Time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	168	447	380	133	190	162	168	1807	808	201	1886	844
v/s Ratio Prot	c0.07	0.05			c0.06		0.06	c0.32		c0.08	c0.15	
v/s Ratio Perm			0.01	0.04		0.01			0.01			0.02
v/c Ratio	0.69	0.21	0.03	0.44	0.60	0.12	0.60	0.62	0.02	0.67	0.29	0.04
Uniform Delay, d1	61.4	42.6	40.7	59.1	60.1	57.1	60.8	24.5	16.9	59.5	18.1	15.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.4	0.2	0.0	2.3	5.2	0.3	5.9	1.6	0.0	8.1	0.4	0.1
Delay (s)	70.8	42.8	40.7	61.3	65.4	57.5	66.7	26.1	17.0	67.6	18.5	15.7
Level of Service	E	D	D	E	E	E	E	C	B	E	B	B
Approach Delay (s)		55.3			60.6			29.2			27.1	
Approach LOS		E			E			C			C	
Intersection Summary												
HCM Average Control Delay			35.5				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			31.0		
Intersection Capacity Utilization			63.7%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

11: John West Rd & Bright Star Rd

AM Existing



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	27	221	178	229	218	52
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	240	193	249	237	57
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				1042		
pX, platoon unblocked						
vC, conflicting volume	901	265	293			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	901	265	293			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	69	85			
cM capacity (veh/h)	262	773	1268			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	270	442	293			
Volume Left	29	193	0			
Volume Right	240	0	57			
cSH	638	1268	1700			
Volume to Capacity	0.42	0.15	0.17			
Queue Length 95th (ft)	53	13	0			
Control Delay (s)	14.7	4.5	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.7	4.5	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			5.9			
Intersection Capacity Utilization			61.7%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

12: Douglas Blvd & Bright Star Rd

AM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	3	90	0	167	2	263	320	264	190	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frt		0.86			1.00	0.85		1.00	0.85		1.00	
Flt Protected		1.00			0.95	1.00		1.00	1.00		0.97	
Satd. Flow (prot)		1611			1770	1583		1862	1583		1809	
Flt Permitted		1.00			0.95	1.00		1.00	1.00		0.66	
Satd. Flow (perm)		1611			1770	1583		1859	1583		1232	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3	98	0	182	2	286	348	287	207	2
RTOR Reduction (vph)	0	3	0	0	0	158	0	0	132	0	0	0
Lane Group Flow (vph)	0	0	0	0	98	24	0	288	216	0	496	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	3	3		4	4			6			2	
Permitted Phases						4	6		6	2		
Actuated Green, G (s)		1.2			10.3	10.3		48.4	48.4		47.0	
Effective Green, g (s)		1.2			10.3	10.3		48.4	48.4		47.0	
Actuated g/C Ratio		0.02			0.13	0.13		0.62	0.62		0.60	
Clearance Time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Vehicle Extension (s)		3.0			3.0	3.0		5.0	5.0		5.0	
Lane Grp Cap (vph)		25			233	209		1152	981		741	
v/s Ratio Prot		c0.00			c0.06							
v/s Ratio Perm						0.02		0.15	0.14		c0.40	
v/c Ratio		0.00			0.42	0.11		0.25	0.22		0.67	
Uniform Delay, d1		37.9			31.2	29.9		6.7	6.5		10.4	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		0.0			1.2	0.2		0.2	0.2		3.0	
Delay (s)		37.9			32.4	30.1		6.9	6.8		13.4	
Level of Service		D			C	C		A	A		B	
Approach Delay (s)		37.9			30.9			6.8			13.4	
Approach LOS		D			C			A			B	
Intersection Summary												
HCM Average Control Delay			14.0				HCM Level of Service				B	
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			78.1				Sum of lost time (s)			19.6		
Intersection Capacity Utilization			66.3%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

13: Cowan Mill Rd & Bright Star Rd

AM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	173	1	51	4	4	7	27	418	3	1	248	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	188	1	55	4	4	8	29	454	3	1	270	40
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	245	16	487	311								
Volume Left (vph)	188	4	29	1								
Volume Right (vph)	55	8	3	40								
Hadj (s)	0.05	-0.19	0.04	-0.04								
Departure Headway (s)	6.1	6.4	5.3	5.4								
Degree Utilization, x	0.41	0.03	0.71	0.47								
Capacity (veh/h)	544	457	662	630								
Control Delay (s)	13.2	9.6	20.2	13.1								
Approach Delay (s)	13.2	9.6	20.2	13.1								
Approach LOS	B	A	C	B								
Intersection Summary												
Delay			16.3									
HCM Level of Service			C									
Intersection Capacity Utilization			68.4%	ICU Level of Service				C				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

14: Central Church Rd & Bright Star Rd

AM Existing

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	7	90	391	24	128	190
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	98	425	26	139	207
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	923	438			451	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	923	438			451	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	84			87	
cM capacity (veh/h)	262	619			1109	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	105	451	346			
Volume Left	8	0	139			
Volume Right	98	26	0			
cSH	563	1700	1109			
Volume to Capacity	0.19	0.27	0.13			
Queue Length 95th (ft)	17	0	11			
Control Delay (s)	12.9	0.0	4.2			
Lane LOS	B		A			
Approach Delay (s)	12.9	0.0	4.2			
Approach LOS	B					
Intersection Summary						
Average Delay		3.1				
Intersection Capacity Utilization		55.1%		ICU Level of Service		B
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

15: Douglas Blvd & Arbor Place Mall Drwy

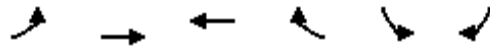
AM Existing

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Volume (vph)	300	44	6	266	24	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.45	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	839	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	326	48	7	289	26	5
RTOR Reduction (vph)	0	21	0	0	0	5
Lane Group Flow (vph)	326	27	7	289	26	0
Turn Type		Perm	pm+pt		Perm	
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	21.6	21.6	27.5	27.5	1.0	1.0
Effective Green, g (s)	21.6	21.6	27.5	27.5	1.0	1.0
Actuated g/C Ratio	0.56	0.56	0.71	0.71	0.03	0.03
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1986	888	621	2528	89	41
v/s Ratio Prot	c0.09		0.00	c0.08	c0.01	
v/s Ratio Perm		0.02	0.01			0.00
v/c Ratio	0.16	0.03	0.01	0.11	0.29	0.00
Uniform Delay, d1	4.1	3.8	1.9	1.7	18.4	18.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.0	0.0	0.0	1.8	0.0
Delay (s)	4.1	3.8	1.9	1.7	20.2	18.3
Level of Service	A	A	A	A	C	B
Approach Delay (s)	4.1			1.7	19.9	
Approach LOS	A			A	B	
Intersection Summary						
HCM Average Control Delay			3.8		HCM Level of Service	A
HCM Volume to Capacity ratio			0.18			
Actuated Cycle Length (s)			38.5		Sum of lost time (s)	15.0
Intersection Capacity Utilization			21.6%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

16: Cedar Mountain Rd & Dorris Rd

AM Existing



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Volume (vph)	43	100	58	158	553	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4		6.3	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	0.90		0.99	
Flt Protected		0.99	1.00		0.96	
Satd. Flow (prot)		1835	1679		1763	
Flt Permitted		0.86	1.00		0.96	
Satd. Flow (perm)		1594	1679		1763	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	109	63	172	601	45
RTOR Reduction (vph)	0	0	111	0	4	0
Lane Group Flow (vph)	0	156	124	0	642	0
Turn Type	Perm					
Protected Phases		2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		21.4	21.4		26.9	
Effective Green, g (s)		21.4	21.4		26.9	
Actuated g/C Ratio		0.36	0.36		0.45	
Clearance Time (s)		5.4	5.4		6.3	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		569	599		790	
v/s Ratio Prot			0.07		c0.36	
v/s Ratio Perm		c0.10				
v/c Ratio		0.27	0.21		0.81	
Uniform Delay, d1		13.8	13.4		14.4	
Progression Factor		1.00	0.71		1.00	
Incremental Delay, d2		1.2	0.8		6.4	
Delay (s)		15.0	10.3		20.8	
Level of Service		B	B		C	
Approach Delay (s)		15.0	10.3		20.8	
Approach LOS		B	B		C	
Intersection Summary						
HCM Average Control Delay			17.5		HCM Level of Service	B
HCM Volume to Capacity ratio			0.57			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	11.7
Intersection Capacity Utilization			70.2%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

17: Cedar Mountain Rd & S Flat Rock Rd

AM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	275	354	23	104	54	106	21	16	44	10	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			5.5			5.1			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.92			0.96			0.99			1.00	
Flt Protected		1.00			0.99			0.96			0.96	
Satd. Flow (prot)		1722			1776			1770			1787	
Flt Permitted		1.00			0.90			0.74			0.73	
Satd. Flow (perm)		1720			1614			1363			1355	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	299	385	25	113	59	115	23	17	48	11	1
RTOR Reduction (vph)	0	58	0	0	20	0	0	8	0	0	1	0
Lane Group Flow (vph)	0	630	0	0	177	0	0	147	0	0	59	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		38.8			39.1			10.3			10.4	
Effective Green, g (s)		38.8			39.1			10.3			10.4	
Actuated g/C Ratio		0.65			0.65			0.17			0.17	
Clearance Time (s)		5.8			5.5			5.1			5.0	
Vehicle Extension (s)		5.0			5.0			3.0			3.0	
Lane Grp Cap (vph)		1112			1052			234			235	
v/s Ratio Prot												
v/s Ratio Perm		c0.37			0.11			c0.11			0.04	
v/c Ratio		0.57			0.17			0.63			0.25	
Uniform Delay, d1		5.9			4.1			23.1			21.4	
Progression Factor		0.43			1.00			1.00			1.00	
Incremental Delay, d2		1.4			0.3			5.2			0.6	
Delay (s)		4.0			4.4			28.2			22.0	
Level of Service		A			A			C			C	
Approach Delay (s)		4.0			4.4			28.2			22.0	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay		8.5			HCM Level of Service			A				
HCM Volume to Capacity ratio		0.58										
Actuated Cycle Length (s)		60.0			Sum of lost time (s)			10.9				
Intersection Capacity Utilization		54.4%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

19: W Stewarts Mill Rd & Woodland Dr

AM Existing

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	3	173	8	26	299	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	188	9	28	325	7
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	191	37	332			
Volume Left (vph)	0	9	325			
Volume Right (vph)	188	0	7			
Hadj (s)	-0.56	0.08	0.22			
Departure Headway (s)	4.2	5.0	4.6			
Degree Utilization, x	0.22	0.05	0.43			
Capacity (veh/h)	790	654	750			
Control Delay (s)	8.4	8.3	11.1			
Approach Delay (s)	8.4	8.3	11.1			
Approach LOS	A	A	B			
Intersection Summary						
Delay			10.0			
HCM Level of Service			A			
Intersection Capacity Utilization			34.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

20: I-20 WB Off Ramp & Chapel Hill Rd

AM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (veh/h)	0	0	0	0	0	109	198	1189	0	0	519	148
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	118	215	1292	0	0	564	161
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (ft)							662					
pX, platoon unblocked	0.80	0.80		0.80	0.80	0.80				0.80		
vC, conflicting volume	1641	2287	282	2005	2287	646	564			1292		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1298	2107	282	1754	2107	52	564			861		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	85	79			100		
cM capacity (veh/h)	68	32	715	36	32	802	1004			620		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3					
Volume Total	118	215	646	646	282	282	161					
Volume Left	0	215	0	0	0	0	0					
Volume Right	118	0	0	0	0	0	161					
cSH	802	1004	1700	1700	1700	1700	1700					
Volume to Capacity	0.15	0.21	0.38	0.38	0.17	0.17	0.09					
Queue Length 95th (ft)	13	20	0	0	0	0	0					
Control Delay (s)	10.3	9.6	0.0	0.0	0.0	0.0	0.0					
Lane LOS	B	A										
Approach Delay (s)	10.3	1.4	0.0									
Approach LOS	B											
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			46.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

21: I-20 EB Off Ramp @ Chapel Hill Rd &

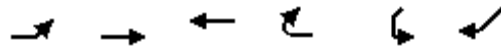
AM Existing

											
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	449	0	458	0	965	787	95	671	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Lane Util. Factor	1.00		1.00		0.95	1.00	1.00	0.91			
Frt	1.00		0.85		1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1770		1583		3539	1583	1770	5085			
Flt Permitted	0.95		1.00		1.00	1.00	0.16	1.00			
Satd. Flow (perm)	1770		1583		3539	1583	292	5085			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	488	0	498	0	1049	855	103	729	0	0	0
RTOR Reduction (vph)	0	0	145	0	0	441	0	0	0	0	0
Lane Group Flow (vph)	488	0	353	0	1049	414	103	729	0	0	0
Turn Type	Prot		custom			Perm	pm+pt				
Protected Phases	4				6		5	2			
Permitted Phases			4			6		2			
Actuated Green, G (s)	37.4		37.4		58.1	58.1	72.1	72.1			
Effective Green, g (s)	37.4		37.4		58.1	58.1	72.1	72.1			
Actuated g/C Ratio	0.31		0.31		0.48	0.48	0.60	0.60			
Clearance Time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Vehicle Extension (s)	3.5		3.5		6.0	6.0	3.5	6.0			
Lane Grp Cap (vph)	552		493		1713	766	286	3055			
v/s Ratio Prot	c0.28				c0.30		c0.03	0.14			
v/s Ratio Perm			0.22			0.26	0.19				
v/c Ratio	0.88		0.72		0.61	0.54	0.36	0.24			
Uniform Delay, d1	39.2		36.6		22.7	21.6	13.9	11.2			
Progression Factor	1.00		1.00		1.00	1.00	1.00	1.00			
Incremental Delay, d2	15.8		5.1		1.6	2.7	0.9	0.2			
Delay (s)	55.0		41.7		24.3	24.3	14.8	11.3			
Level of Service	E		D		C	C	B	B			
Approach Delay (s)		48.3			24.3			11.8		0.0	
Approach LOS		D			C			B		A	
Intersection Summary											
HCM Average Control Delay			27.9		HCM Level of Service			C			
HCM Volume to Capacity ratio			0.69								
Actuated Cycle Length (s)			120.0		Sum of lost time (s)			15.5			
Intersection Capacity Utilization			68.9%		ICU Level of Service			C			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

22: Bill Arp Rd Hwy 5 & Bright Star Rd

AM Existing



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↩	↩		↩	↩
Volume (veh/h)	276	769	381	6	4	136
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	300	836	414	7	4	148
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	421				1853	417
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	421				1853	417
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	74				93	77
cM capacity (veh/h)	1138				60	635
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	1136	421	152			
Volume Left	300	0	4			
Volume Right	0	7	148			
cSH	1138	1700	499			
Volume to Capacity	0.26	0.25	0.31			
Queue Length 95th (ft)	27	0	32			
Control Delay (s)	6.0	0.0	15.4			
Lane LOS	A		C			
Approach Delay (s)	6.0	0.0	15.4			
Approach LOS			C			
Intersection Summary						
Average Delay			5.4			
Intersection Capacity Utilization			94.8%	ICU Level of Service		F
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 112: West Strickland St & Bankhead Hwy RR Crossing

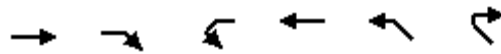
AM Existing

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	26	388	13	9	1	160	2	22	2	1	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	28	422	14	10	1	174	2	24	2	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	373	379	1	803	367	14	1			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	373	379	1	803	367	14	1			26		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	94	61	91	98	100	89			100		
cM capacity (veh/h)	527	493	1083	162	501	1066	1622			1588		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	450	25	200	3								
Volume Left	0	14	174	2								
Volume Right	422	1	24	0								
cSH	1008	232	1622	1588								
Volume to Capacity	0.45	0.11	0.11	0.00								
Queue Length 95th (ft)	59	9	9	0								
Control Delay (s)	11.4	22.4	6.6	4.9								
Lane LOS	B	C	A	A								
Approach Delay (s)	11.4	22.4	6.6	4.9								
Approach LOS	B	C										
Intersection Summary												
Average Delay			10.4									
Intersection Capacity Utilization			45.3%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

1: Bankhead Hwy US78 & John West Rd

PM Existing
8/20/2009



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑	↗		↖	↘	
Volume (veh/h)	300	116	6	645	207	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	326	126	7	701	225	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			452		1040	326
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			452		1040	326
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		11	97
cM capacity (veh/h)			1108		254	715
Direction, Lane #	EB 1	EB 2	WB 1	NW 1		
Volume Total	326	126	708	249		
Volume Left	0	0	7	225		
Volume Right	0	126	0	24		
cSH	1700	1700	1108	270		
Volume to Capacity	0.19	0.07	0.01	0.92		
Queue Length 95th (ft)	0	0	0	210		
Control Delay (s)	0.0	0.0	0.2	76.9		
Lane LOS			A	F		
Approach Delay (s)	0.0		0.2	76.9		
Approach LOS				F		
Intersection Summary						
Average Delay			13.7			
Intersection Capacity Utilization			58.2%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Bankhead Hwy US 78 & Bill Arp Rd Hwy 5

PM Existing
8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	292	105	146	564	166	308
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.91	
Flt Protected	1.00	1.00	0.95	1.00	0.98	
Satd. Flow (prot)	1863	1583	1770	1863	1670	
Flt Permitted	1.00	1.00	0.32	1.00	0.98	
Satd. Flow (perm)	1863	1583	602	1863	1670	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	317	114	159	613	180	335
RTOR Reduction (vph)	0	83	0	0	67	0
Lane Group Flow (vph)	317	31	159	613	448	0
Turn Type	Perm		pm+pt			
Protected Phases	6		5	2	4	
Permitted Phases		6	2			
Actuated Green, G (s)	19.0	19.0	33.5	33.5	23.9	
Effective Green, g (s)	19.0	19.0	33.5	33.5	23.9	
Actuated g/C Ratio	0.27	0.27	0.48	0.48	0.34	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	
Lane Grp Cap (vph)	510	433	434	899	575	
v/s Ratio Prot	0.17		0.04	c0.33	c0.27	
v/s Ratio Perm		0.02	0.13			
v/c Ratio	0.62	0.07	0.37	0.68	0.78	
Uniform Delay, d1	22.1	18.7	11.2	13.8	20.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.3	0.1	0.2	2.8	6.0	
Delay (s)	25.4	18.8	11.4	16.6	26.4	
Level of Service	C	B	B	B	C	
Approach Delay (s)	23.6			15.5	26.4	
Approach LOS	C			B	C	
Intersection Summary						
HCM Average Control Delay			20.8		HCM Level of Service	C
HCM Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			69.4		Sum of lost time (s)	12.0
Intersection Capacity Utilization			67.8%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Bankhead Hwy US78 & Rose Ave

PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	334	21	78	451	78	63	243	96	39	142	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Flt	1.00	0.99		1.00	0.98			0.97			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1846		1770	1821			1789			1808	
Flt Permitted	0.43	1.00		0.31	1.00			0.92			0.88	
Satd. Flow (perm)	803	1846		569	1821			1654			1603	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	363	23	85	490	85	68	264	104	42	154	35
RTOR Reduction (vph)	0	2	0	0	7	0	0	8	0	0	4	0
Lane Group Flow (vph)	26	384	0	85	568	0	0	428	0	0	227	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases	6			5		2	8			4		
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	26.4	26.4		38.0	38.0			27.6			27.6	
Effective Green, g (s)	26.4	26.4		38.0	38.0			27.6			27.6	
Actuated g/C Ratio	0.35	0.35		0.50	0.50			0.36			0.36	
Clearance Time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Vehicle Extension (s)	6.0	6.0		3.0	6.0			3.0			8.0	
Lane Grp Cap (vph)	280	644		389	914			603			584	
v/s Ratio Prot		0.21		0.02	c0.31							
v/s Ratio Perm	0.03			0.09				c0.26			0.14	
v/c Ratio	0.09	0.60		0.22	0.62			0.71			0.39	
Uniform Delay, d1	16.6	20.3		11.2	13.6			20.6			17.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.4	2.7		0.3	2.2			3.8			1.8	
Delay (s)	17.0	23.0		11.5	15.9			24.4			19.6	
Level of Service	B	C		B	B			C			B	
Approach Delay (s)		22.6			15.3			24.4			19.6	
Approach LOS		C			B			C			B	
Intersection Summary												
HCM Average Control Delay			19.9			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			75.7			Sum of lost time (s)			10.1			
Intersection Capacity Utilization			77.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Bill Arp Rd Hwy 5 & Rose Ave

PM Existing
8/20/2009

						
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Volume (veh/h)	686	471	72	340	339	79
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	746	512	78	370	368	86
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	371					
pX, platoon unblocked			0.81		0.81	0.81
vC, conflicting volume			746		1272	746
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			567		1218	567
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		0	80
cM capacity (veh/h)			813		146	423
Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SW 1	
Volume Total	746	512	78	370	454	
Volume Left	0	0	78	0	368	
Volume Right	0	512	0	0	86	
cSH	1700	1700	813	1700	166	
Volume to Capacity	0.44	0.30	0.10	0.22	2.73	
Queue Length 95th (ft)	0	0	8	0	1006	
Control Delay (s)	0.0	0.0	9.9	0.0	838.0	
Lane LOS			A		F	
Approach Delay (s)	0.0		1.7		838.0	
Approach LOS					F	
Intersection Summary						
Average Delay			176.6			
Intersection Capacity Utilization			73.7%		ICU Level of Service	D
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

5: Concourse Pkwy & Bill Arp Rd Hwy 5

PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	1	519	0	92	0	1040	435	52	602	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5	6.5	6.5	6.5		6.5	6.5	6.0	6.5	
Lane Util. Factor			1.00	0.95	0.95	1.00		0.95	1.00	1.00	0.95	
Frt			0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected			1.00	0.95	0.95	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)			1583	1681	1681	1583		3539	1583	1770	3539	
Flt Permitted			1.00	0.95	0.95	1.00		1.00	1.00	0.18	1.00	
Satd. Flow (perm)			1583	1681	1681	1583		3539	1583	340	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	1	564	0	100	0	1130	473	57	654	0
RTOR Reduction (vph)	0	0	1	0	0	57	0	0	178	0	0	0
Lane Group Flow (vph)	0	0	0	282	282	43	0	1130	295	57	654	0
Turn Type	Split		Perm	Split		Perm	pm+pt		Perm	pm+pt		
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases			4			3	6		6		2	
Actuated Green, G (s)			1.4	21.8	21.8	21.8		87.2	87.2	97.3	97.3	
Effective Green, g (s)			1.4	21.8	21.8	21.8		87.2	87.2	97.3	97.3	
Actuated g/C Ratio			0.01	0.16	0.16	0.16		0.62	0.62	0.70	0.70	
Clearance Time (s)			6.5	6.5	6.5	6.5		6.5	6.5	6.0	6.5	
Vehicle Extension (s)			1.0	1.0	1.0	1.0		5.0	5.0	1.0	5.0	
Lane Grp Cap (vph)			16	262	262	246		2204	986	278	2460	
v/s Ratio Prot				c0.17	0.17			c0.32		0.01	c0.18	
v/s Ratio Perm			c0.00			0.03			0.19	0.14		
v/c Ratio			0.00	1.08	1.08	0.18		0.51	0.30	0.21	0.27	
Uniform Delay, d1			68.6	59.1	59.1	51.3		14.6	12.2	9.4	8.0	
Progression Factor			1.00	1.00	1.00	1.00		1.56	10.71	1.00	1.00	
Incremental Delay, d2			0.0	77.4	77.4	0.1		0.6	0.6	0.1	0.3	
Delay (s)			68.6	136.5	136.5	51.4		23.5	131.6	9.5	8.3	
Level of Service			E	F	F	D		C	F	A	A	
Approach Delay (s)		68.6			123.7			55.4			8.4	
Approach LOS		E			F			E			A	
Intersection Summary												
HCM Average Control Delay			59.4				HCM Level of Service			E		
HCM Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)		26.0			
Intersection Capacity Utilization			63.1%				ICU Level of Service		B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Bill Arp Rd Hwy 5 & I-20 WB Ramp

PM Existing
8/20/2009

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	 				 			 			
Volume (vph)	890	0	600	258	838	0	0	948	166	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	6.5	6.0			6.0			
Lane Util. Factor	0.97		1.00	1.00	0.95			0.95			
Frt	1.00		0.85	1.00	1.00			0.98			
Flt Protected	0.95		1.00	0.95	1.00			1.00			
Satd. Flow (prot)	3433		1583	1770	3539			3460			
Flt Permitted	0.95		1.00	0.08	1.00			1.00			
Satd. Flow (perm)	3433		1583	142	3539			3460			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	967	0	652	280	911	0	0	1030	180	0	0
RTOR Reduction (vph)	0	0	56	0	0	0	0	10	0	0	0
Lane Group Flow (vph)	967	0	596	280	911	0	0	1200	0	0	0
Turn Type	Prot		custom	pm+pt							
Protected Phases	8			1	6			2			
Permitted Phases			8	6							
Actuated Green, G (s)	56.6		56.6	71.9	71.9			45.8			
Effective Green, g (s)	56.6		56.6	71.9	71.9			45.8			
Actuated g/C Ratio	0.40		0.40	0.51	0.51			0.33			
Clearance Time (s)	5.5		5.5	6.5	6.0			6.0			
Vehicle Extension (s)	3.0		3.0	4.0	5.0			5.0			
Lane Grp Cap (vph)	1388		640	301	1818			1132			
v/s Ratio Prot	0.28			c0.13	0.26			c0.35			
v/s Ratio Perm			c0.38	0.35							
v/c Ratio	0.70		0.93	0.93	0.50			1.06			
Uniform Delay, d1	34.6		39.8	44.4	22.3			47.1			
Progression Factor	1.00		1.00	1.02	1.09			0.72			
Incremental Delay, d2	1.5		20.4	32.3	0.9			41.2			
Delay (s)	36.1		60.2	77.4	25.3			75.2			
Level of Service	D		E	E	C			E			
Approach Delay (s)		45.8			37.5			75.2		0.0	
Approach LOS		D			D			E		A	
Intersection Summary											
HCM Average Control Delay			52.2		HCM Level of Service			D			
HCM Volume to Capacity ratio			0.98								
Actuated Cycle Length (s)			140.0		Sum of lost time (s)			18.0			
Intersection Capacity Utilization			69.9%		ICU Level of Service			C			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

7: I-20 EB Off Ramp & Bill Arp Rd Hwy 5

PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (vph)	120	0	189	0	0	0	0	963	438	235	1594	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Lane Util. Factor	1.00		1.00					0.95	1.00	1.00	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770		1583					3539	1583	1770	3539	
Flt Permitted	0.95		1.00					1.00	1.00	0.21	1.00	
Satd. Flow (perm)	1770		1583					3539	1583	391	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	0	205	0	0	0	0	1047	476	255	1733	0
RTOR Reduction (vph)	0	0	28	0	0	0	0	0	173	0	0	0
Lane Group Flow (vph)	130	0	177	0	0	0	0	1047	303	255	1733	0
Turn Type	Prot		custom						Perm		pm+pt	
Protected Phases	4							6		5	2	
Permitted Phases			4						6		2	
Actuated Green, G (s)	20.8		20.8					89.1	89.1	107.7	107.7	
Effective Green, g (s)	20.8		20.8					89.1	89.1	107.7	107.7	
Actuated g/C Ratio	0.15		0.15					0.64	0.64	0.77	0.77	
Clearance Time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Vehicle Extension (s)	3.0		3.0					5.0	5.0	3.5	5.0	
Lane Grp Cap (vph)	263		235					2252	1007	430	2723	
v/s Ratio Prot	0.07							0.30		0.06	c0.49	
v/s Ratio Perm			c0.11						0.19	0.40		
v/c Ratio	0.49		0.75					0.46	0.30	0.59	0.64	
Uniform Delay, d1	54.8		57.1					13.1	11.4	7.8	7.3	
Progression Factor	1.00		1.00					1.43	3.93	1.86	1.96	
Incremental Delay, d2	1.5		12.8					0.3	0.3	1.1	0.5	
Delay (s)	56.2		69.9					19.1	45.4	15.6	14.8	
Level of Service	E		E					B	D	B	B	
Approach Delay (s)		64.6			0.0			27.3			14.9	
Approach LOS		E			A			C			B	
Intersection Summary												
HCM Average Control Delay			24.2									HCM Level of Service C
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			140.0							11.5		
Intersection Capacity Utilization			69.9%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Douglas Blvd & Bill Arp Rd Hwy 5

PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	353	221	74	277	158	458	101	594	277	351	1131	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3406		1770	1863	1583	1770	3370		1770	3438	
Flt Permitted	0.44	1.00		0.33	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	811	3406		606	1863	1583	1770	3370		1770	3438	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	384	240	80	301	172	498	110	646	301	382	1229	291
RTOR Reduction (vph)	0	23	0	0	0	329	0	39	0	0	15	0
Lane Group Flow (vph)	384	297	0	301	172	169	110	908	0	382	1505	0
Turn Type	pm+pt			pm+pt		Perm	Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8		8						
Actuated Green, G (s)	40.9	19.5		43.3	20.7	20.7	11.1	45.3		32.6	66.8	
Effective Green, g (s)	40.9	19.5		43.3	20.7	20.7	11.1	45.3		32.6	66.8	
Actuated g/C Ratio	0.29	0.14		0.31	0.15	0.15	0.08	0.32		0.23	0.48	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	384	474		375	275	234	140	1090		412	1640	
v/s Ratio Prot	c0.15	0.09		0.13	0.09		0.06	0.27		c0.22	c0.44	
v/s Ratio Perm	c0.14			0.12		0.11						
v/c Ratio	1.00	0.63		0.80	0.63	0.72	0.79	0.83		0.93	0.92	
Uniform Delay, d1	46.8	56.8		40.6	56.0	56.9	63.3	43.9		52.5	34.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.71	1.25	
Incremental Delay, d2	45.9	3.6		12.3	6.2	12.7	25.7	7.5		22.8	7.9	
Delay (s)	92.7	60.4		53.0	62.2	69.6	89.0	51.4		60.3	50.6	
Level of Service	F	E		D	E	E	F	D		E	D	
Approach Delay (s)		78.1			63.1			55.3			52.6	
Approach LOS		E			E			E			D	
Intersection Summary												
HCM Average Control Delay			59.3			HCM Level of Service				E		
HCM Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			96.9%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Stewart Pkwy & Bill Arp Rd Hwy 5

PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	219	171	45	150	130	142	700	20	272	1068	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	5.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.61	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1138	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	238	186	49	163	141	154	761	22	296	1161	147
RTOR Reduction (vph)	0	0	132	0	0	124	0	0	13	0	0	63
Lane Group Flow (vph)	201	238	54	49	163	17	154	761	9	296	1161	84
Turn Type	Prot		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases			4	8		8			6			2
Actuated Green, G (s)	20.9	46.4	46.4	19.5	19.5	19.5	19.2	64.0	64.0	31.6	75.9	75.9
Effective Green, g (s)	20.9	46.4	46.4	19.5	19.5	19.5	19.2	64.0	64.0	31.6	75.9	75.9
Actuated g/C Ratio	0.13	0.29	0.29	0.12	0.12	0.12	0.12	0.40	0.40	0.20	0.47	0.47
Clearance Time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	231	540	459	139	227	193	212	1416	633	350	1679	751
v/s Ratio Prot	c0.11	0.13			c0.09		0.09	0.22		c0.17	c0.33	
v/s Ratio Perm			0.03	0.04		0.01			0.01			0.05
v/c Ratio	0.87	0.44	0.12	0.35	0.72	0.09	0.73	0.54	0.01	0.85	0.69	0.11
Uniform Delay, d1	68.2	46.2	41.8	64.5	67.6	62.4	67.9	36.7	29.0	61.9	32.9	23.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.3	0.6	0.1	1.5	10.3	0.2	11.7	1.5	0.0	16.9	2.4	0.3
Delay (s)	95.5	46.8	41.9	66.0	77.9	62.6	79.6	38.2	29.0	78.7	35.3	23.7
Level of Service	F	D	D	E	E	E	E	D	C	E	D	C
Approach Delay (s)		61.0			70.1			44.7			42.2	
Approach LOS		E			E			D			D	
Intersection Summary												
HCM Average Control Delay			49.0				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			76.0%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

11: John West Rd & Bright Star Rd

PM Existing
8/20/2009



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	16	146	217	246	449	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	159	236	267	488	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				1042		
pX, platoon unblocked						
vC, conflicting volume	1241	502	515			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1241	502	515			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	72	78			
cM capacity (veh/h)	150	570	1050			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	176	503	515			
Volume Left	17	236	0			
Volume Right	159	0	27			
cSH	446	1050	1700			
Volume to Capacity	0.39	0.22	0.30			
Queue Length 95th (ft)	46	22	0			
Control Delay (s)	18.2	5.7	0.0			
Lane LOS	C	A				
Approach Delay (s)	18.2	5.7	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			5.1			
Intersection Capacity Utilization			70.0%	ICU Level of Service		C
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

12: Douglas Blvd & Bright Star Rd

PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	2	2	266	4	267	3	187	233	309	290	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frt		0.96			1.00	0.85		1.00	0.85		1.00	
Flt Protected		0.98			0.95	1.00		1.00	1.00		0.97	
Satd. Flow (prot)		1753			1775	1583		1861	1583		1815	
Flt Permitted		0.98			0.95	1.00		0.99	1.00		0.73	
Satd. Flow (perm)		1753			1775	1583		1852	1583		1364	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	2	2	289	4	290	3	203	253	336	315	2
RTOR Reduction (vph)	0	2	0	0	0	230	0	0	101	0	0	0
Lane Group Flow (vph)	0	5	0	0	293	60	0	206	152	0	653	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	3	3		4	4			6			2	
Permitted Phases						4	6		6	2		
Actuated Green, G (s)		1.3			20.8	20.8		60.4	60.4		59.0	
Effective Green, g (s)		1.3			20.8	20.8		60.4	60.4		59.0	
Actuated g/C Ratio		0.01			0.21	0.21		0.60	0.60		0.59	
Clearance Time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Vehicle Extension (s)		3.0			3.0	3.0		5.0	5.0		5.0	
Lane Grp Cap (vph)		23			367	327		1111	949		799	
v/s Ratio Prot		c0.00			c0.17							
v/s Ratio Perm						0.04		0.11	0.10		c0.48	
v/c Ratio		0.22			0.80	0.18		0.19	0.16		0.82	
Uniform Delay, d1		49.2			38.0	32.9		9.1	8.9		16.6	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		4.8			11.5	0.3		0.2	0.2		7.3	
Delay (s)		53.9			49.4	33.2		9.2	9.1		23.9	
Level of Service		D			D	C		A	A		C	
Approach Delay (s)		53.9			41.4			9.2			23.9	
Approach LOS		D			D			A			C	
Intersection Summary												
HCM Average Control Delay			26.0			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			100.7			Sum of lost time (s)			19.6			
Intersection Capacity Utilization			79.5%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 13: Cowan Mill Rd & Bright Star Rd

PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	110	6	53	6	3	9	62	319	5	11	412	143
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	120	7	58	7	3	10	67	347	5	12	448	155
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	184	20	420	615								
Volume Left (vph)	120	7	67	12								
Volume Right (vph)	58	10	5	155								
Hadj (s)	-0.02	-0.20	0.06	-0.11								
Departure Headway (s)	6.5	7.0	5.5	5.1								
Degree Utilization, x	0.33	0.04	0.65	0.88								
Capacity (veh/h)	521	450	624	684								
Control Delay (s)	12.8	10.2	18.1	33.5								
Approach Delay (s)	12.8	10.2	18.1	33.5								
Approach LOS	B	B	C	D								
Intersection Summary												
Delay				24.8								
HCM Level of Service				C								
Intersection Capacity Utilization				75.4%	ICU Level of Service	D						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

14: Central Church Rd & Bright Star Rd

PM Existing
8/20/2009



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	13	154	249	38	158	344
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	167	271	41	172	374
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1009	291			312	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1009	291			312	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	78			86	
cM capacity (veh/h)	230	748			1248	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	182	312	546			
Volume Left	14	0	172			
Volume Right	167	41	0			
cSH	636	1700	1248			
Volume to Capacity	0.29	0.18	0.14			
Queue Length 95th (ft)	29	0	12			
Control Delay (s)	12.9	0.0	3.6			
Lane LOS	B		A			
Approach Delay (s)	12.9	0.0	3.6			
Approach LOS	B					
Intersection Summary						
Average Delay			4.2			
Intersection Capacity Utilization			62.5%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

15: Douglas Blvd & Arbor Place Mall Drwy

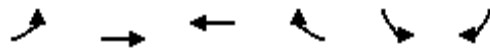
PM Existing
8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↑
Volume (vph)	510	246	57	645	400	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.32	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	587	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	554	267	62	701	435	33
RTOR Reduction (vph)	0	177	0	0	0	24
Lane Group Flow (vph)	554	90	62	701	435	9
Turn Type		Perm	pm+pt			Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	16.1	16.1	25.2	25.2	12.7	12.7
Effective Green, g (s)	16.1	16.1	25.2	25.2	12.7	12.7
Actuated g/C Ratio	0.34	0.34	0.53	0.53	0.27	0.27
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1190	532	410	1862	910	420
v/s Ratio Prot	c0.16		0.01	c0.20	c0.13	
v/s Ratio Perm		0.06	0.07			0.01
v/c Ratio	0.47	0.17	0.15	0.38	0.48	0.02
Uniform Delay, d1	12.5	11.2	6.0	6.7	14.8	13.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.2	0.2	0.1	0.4	0.0
Delay (s)	12.8	11.3	6.2	6.8	15.2	13.0
Level of Service	B	B	A	A	B	B
Approach Delay (s)	12.3			6.8	15.1	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay			10.9	HCM Level of Service		B
HCM Volume to Capacity ratio			0.49			
Actuated Cycle Length (s)			47.9	Sum of lost time (s)		15.0
Intersection Capacity Utilization			43.0%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

16: Cedar Mountain Rd & Dorris Rd

PM Existing
8/20/2009



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Volume (vph)	38	50	102	550	248	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4		6.3	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	0.89		0.98	
Flt Protected		0.98	1.00		0.96	
Satd. Flow (prot)		1823	1651		1747	
Flt Permitted		0.70	1.00		0.96	
Satd. Flow (perm)		1303	1651		1747	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	54	111	598	270	57
RTOR Reduction (vph)	0	0	228	0	14	0
Lane Group Flow (vph)	0	95	481	0	313	0
Turn Type	Perm					
Protected Phases		2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		36.4	36.4		16.9	
Effective Green, g (s)		36.4	36.4		16.9	
Actuated g/C Ratio		0.56	0.56		0.26	
Clearance Time (s)		5.4	5.4		6.3	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		730	925		454	
v/s Ratio Prot			c0.29		c0.18	
v/s Ratio Perm		0.07				
v/c Ratio		0.13	0.52		0.69	
Uniform Delay, d1		6.8	8.9		21.7	
Progression Factor		1.00	0.89		1.00	
Incremental Delay, d2		0.4	1.6		4.3	
Delay (s)		7.2	9.5		26.0	
Level of Service		A	A		C	
Approach Delay (s)		7.2	9.5		26.0	
Approach LOS		A	A		C	
Intersection Summary						
HCM Average Control Delay			14.0		HCM Level of Service	B
HCM Volume to Capacity ratio			0.57			
Actuated Cycle Length (s)			65.0		Sum of lost time (s)	11.7
Intersection Capacity Utilization			65.9%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

17: Cedar Mountain Rd & S Flat Rock Rd

PM Existing
8/20/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	108	175	21	231	16	432	6	24	19	6	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			5.5			5.1			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.92			0.99			0.99			0.99	
Flt Protected		1.00			1.00			0.96			0.97	
Satd. Flow (prot)		1708			1841			1767			1784	
Flt Permitted		1.00			0.96			0.72			0.74	
Satd. Flow (perm)		1702			1772			1328			1372	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	117	190	23	251	17	470	7	26	21	7	2
RTOR Reduction (vph)	0	100	0	0	4	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	211	0	0	287	0	0	500	0	0	29	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		23.8			24.1			30.3			30.4	
Effective Green, g (s)		23.8			24.1			30.3			30.4	
Actuated g/C Ratio		0.37			0.37			0.47			0.47	
Clearance Time (s)		5.8			5.5			5.1			5.0	
Vehicle Extension (s)		5.0			5.0			3.0			3.0	
Lane Grp Cap (vph)		623			657			619			642	
v/s Ratio Prot												
v/s Ratio Perm		0.12			c0.16			c0.38			0.02	
v/c Ratio		0.34			0.44			0.81			0.05	
Uniform Delay, d1		14.9			15.4			14.9			9.4	
Progression Factor		0.12			1.00			1.00			1.00	
Incremental Delay, d2		1.4			1.0			7.7			0.0	
Delay (s)		3.2			16.3			22.5			9.4	
Level of Service		A			B			C			A	
Approach Delay (s)		3.2			16.3			22.5			9.4	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM Average Control Delay			15.3		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			65.0		Sum of lost time (s)				10.6			
Intersection Capacity Utilization			67.0%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 19: W Stewarts Mill Rd & Woodland Dr

PM Existing
8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	24	328	7	18	310	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	357	8	20	337	16
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	383	27	353			
Volume Left (vph)	0	8	337			
Volume Right (vph)	357	0	16			
Hadj (s)	-0.53	0.09	0.20			
Departure Headway (s)	4.4	5.4	5.0			
Degree Utilization, x	0.46	0.04	0.50			
Capacity (veh/h)	779	597	672			
Control Delay (s)	11.1	8.7	12.9			
Approach Delay (s)	11.1	8.7	12.9			
Approach LOS	B	A	B			
Intersection Summary						
Delay			11.9			
HCM Level of Service			B			
Intersection Capacity Utilization			46.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 20: I-20 WB Off Ramp & Chapel Hill Rd

PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (veh/h)	0	0	0	0	0	192	404	802	0	0	1095	469
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	209	439	872	0	0	1190	510
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	662											
pX, platoon unblocked	0.87	0.87		0.87	0.87	0.87				0.87		
vC, conflicting volume	2504	2940	595	2345	2940	436	1190			872		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2433	2932	595	2250	2932	65	1190			564		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	76	25			100		
cM capacity (veh/h)	4	3	447	8	3	861	582			877		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3					
Volume Total	209	439	436	436	595	595	510					
Volume Left	0	439	0	0	0	0	0					
Volume Right	209	0	0	0	0	0	510					
cSH	861	582	1700	1700	1700	1700	1700					
Volume to Capacity	0.24	0.75	0.26	0.26	0.35	0.35	0.30					
Queue Length 95th (ft)	24	167	0	0	0	0	0					
Control Delay (s)	10.5	27.7	0.0	0.0	0.0	0.0	0.0					
Lane LOS	B	D										
Approach Delay (s)	10.5	9.3	0.0									
Approach LOS	B											
Intersection Summary												
Average Delay	4.5											
Intersection Capacity Utilization	69.7%				ICU Level of Service				C			
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

21: I-20 EB Off Ramp @ Chapel Hill Rd &

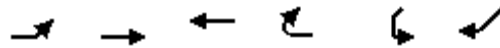
PM Existing
8/20/2009

											
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations					 			  			
Volume (vph)	149	0	290	0	1040	546	70	1647	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Lane Util. Factor	1.00		1.00		0.95	1.00	1.00	0.91			
Frt	1.00		0.85		1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1770		1583		3539	1583	1770	5085			
Flt Permitted	0.95		1.00		1.00	1.00	0.19	1.00			
Satd. Flow (perm)	1770		1583		3539	1583	345	5085			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	162	0	315	0	1130	593	76	1790	0	0	0
RTOR Reduction (vph)	0	0	30	0	0	217	0	0	0	0	0
Lane Group Flow (vph)	162	0	285	0	1130	376	76	1790	0	0	0
Turn Type	Prot		custom			Perm	pm+pt				
Protected Phases	4				6		5	2			
Permitted Phases			4			6		2			
Actuated Green, G (s)	28.0		28.0		88.8	88.8	101.5	101.5			
Effective Green, g (s)	28.0		28.0		88.8	88.8	101.5	101.5			
Actuated g/C Ratio	0.20		0.20		0.63	0.63	0.72	0.72			
Clearance Time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Vehicle Extension (s)	3.5		3.5		6.0	6.0	3.5	6.0			
Lane Grp Cap (vph)	354		317		2245	1004	329	3687			
v/s Ratio Prot	0.09				c0.32		0.01	c0.35			
v/s Ratio Perm			c0.18			0.24	0.15				
v/c Ratio	0.46		0.90		0.50	0.37	0.23	0.49			
Uniform Delay, d1	49.3		54.6		13.8	12.3	8.1	8.2			
Progression Factor	1.00		1.00		1.00	1.00	1.00	1.00			
Incremental Delay, d2	1.1		27.4		0.8	1.1	0.4	0.5			
Delay (s)	50.4		82.0		14.6	13.4	8.6	8.6			
Level of Service	D		F		B	B	A	A			
Approach Delay (s)		71.3			14.1			8.6		0.0	
Approach LOS		E			B			A		A	
Intersection Summary											
HCM Average Control Delay			18.3		HCM Level of Service			B			
HCM Volume to Capacity ratio			0.60								
Actuated Cycle Length (s)			140.0		Sum of lost time (s)			16.0			
Intersection Capacity Utilization			58.5%		ICU Level of Service			B			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

22: Bill Arp Rd Hwy 5 & Bright Star Rd

PM Existing
8/20/2009



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Volume (veh/h)	160	444	776	3	1	166
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	174	483	843	3	1	180
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	847				1676	845
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	847				1676	845
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	78				99	50
cM capacity (veh/h)	790				82	363
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	657	847	182			
Volume Left	174	0	1			
Volume Right	0	3	180			
cSH	790	1700	355			
Volume to Capacity	0.22	0.50	0.51			
Queue Length 95th (ft)	21	0	69			
Control Delay (s)	5.3	0.0	25.2			
Lane LOS	A		D			
Approach Delay (s)	5.3	0.0	25.2			
Approach LOS			D			
Intersection Summary						
Average Delay			4.8			
Intersection Capacity Utilization			93.6%	ICU Level of Service		F
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

112: West Strickland St & Bankhead Hwy RR Crossing

PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	16	261	25	18	1	447	1	40	1	1	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	17	284	27	20	1	486	1	43	1	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1009	1020	1	1290	998	23	1			45		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1009	1020	1	1290	998	23	1			45		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	90	74	63	89	100	70			100		
cM capacity (veh/h)	154	166	1083	73	171	1054	1622			1564		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	301	48	530	2								
Volume Left	0	27	486	1								
Volume Right	284	1	43	0								
cSH	821	99	1622	1564								
Volume to Capacity	0.37	0.49	0.30	0.00								
Queue Length 95th (ft)	42	53	32	0								
Control Delay (s)	11.9	72.0	7.7	3.7								
Lane LOS	B	F	A	A								
Approach Delay (s)	11.9	72.0	7.7	3.7								
Approach LOS	B	F										
Intersection Summary												
Average Delay			12.6									
Intersection Capacity Utilization			63.9%	ICU Level of Service					B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

1: Bankhead Hwy US78 & John West Rd

Saturday Afternoon PM Existing
8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	256	87	5	321	105	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	278	95	5	349	114	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			373		638	278
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			373		638	278
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		74	99
cM capacity (veh/h)			1186		439	761
Direction, Lane #	EB 1	EB 2	WB 1	NW 1		
Volume Total	278	95	354	120		
Volume Left	0	0	5	114		
Volume Right	0	95	0	5		
cSH	1700	1700	1186	447		
Volume to Capacity	0.16	0.06	0.00	0.27		
Queue Length 95th (ft)	0	0	0	27		
Control Delay (s)	0.0	0.0	0.2	16.0		
Lane LOS			A	C		
Approach Delay (s)	0.0		0.2	16.0		
Approach LOS				C		
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization			33.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
2: Bankhead Hwy US 78 & Bill Arp Rd Hwy 5

Saturday Afternoon PM Existing
8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	286	60	161	370	79	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.90	
Flt Protected	1.00	1.00	0.95	1.00	0.99	
Satd. Flow (prot)	1863	1583	1770	1863	1659	
Flt Permitted	1.00	1.00	0.37	1.00	0.99	
Satd. Flow (perm)	1863	1583	695	1863	1659	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	311	65	175	402	86	216
RTOR Reduction (vph)	0	45	0	0	110	0
Lane Group Flow (vph)	311	20	175	402	192	0
Turn Type		Perm	pm+pt			
Protected Phases	6		5	2	4	
Permitted Phases		6	2			
Actuated Green, G (s)	17.1	17.1	32.6	32.6	10.9	
Effective Green, g (s)	17.1	17.1	32.6	32.6	10.9	
Actuated g/C Ratio	0.31	0.31	0.59	0.59	0.20	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	
Lane Grp Cap (vph)	574	488	592	1094	326	
v/s Ratio Prot	c0.17		0.05	c0.22	c0.12	
v/s Ratio Perm		0.01	0.12			
v/c Ratio	0.54	0.04	0.30	0.37	0.59	
Uniform Delay, d1	15.9	13.5	5.9	6.0	20.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.8	0.1	0.1	0.4	1.8	
Delay (s)	17.8	13.5	6.0	6.5	22.0	
Level of Service	B	B	A	A	C	
Approach Delay (s)	17.0			6.3	22.0	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay			13.3		HCM Level of Service	B
HCM Volume to Capacity ratio			0.55			
Actuated Cycle Length (s)			55.5		Sum of lost time (s)	18.0
Intersection Capacity Utilization			55.6%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Bankhead Hwy US78 & Rose Ave

Saturday Afternoon PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	222	26	106	268	47	35	179	158	67	193	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.98			0.94			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1770	1834		1770	1821			1748			1815	
Flt Permitted	0.56	1.00		0.34	1.00			0.95			0.84	
Satd. Flow (perm)	1034	1834		638	1821			1662			1544	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	241	28	115	291	51	38	195	172	73	210	34
RTOR Reduction (vph)	0	5	0	0	8	0	0	17	0	0	3	0
Lane Group Flow (vph)	16	264	0	115	334	0	0	388	0	0	314	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		6		5	2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	19.4	19.4		34.1	34.1			34.2			34.2	
Effective Green, g (s)	19.4	19.4		34.1	34.1			34.2			34.2	
Actuated g/C Ratio	0.25	0.25		0.43	0.43			0.44			0.44	
Clearance Time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Vehicle Extension (s)	6.0	6.0		3.0	6.0			3.0			8.0	
Lane Grp Cap (vph)	256	454		416	792			725			674	
v/s Ratio Prot		c0.14		0.03	c0.18							
v/s Ratio Perm	0.02			0.09				c0.23			0.20	
v/c Ratio	0.06	0.58		0.28	0.42			0.54			0.47	
Uniform Delay, d1	22.5	25.9		14.2	15.3			16.3			15.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	3.6		0.4	1.0			0.8			2.2	
Delay (s)	22.8	29.6		14.5	16.4			17.0			17.8	
Level of Service	C	C		B	B			B			B	
Approach Delay (s)		29.2			15.9			17.0			17.8	
Approach LOS		C			B			B			B	
Intersection Summary												
HCM Average Control Delay			19.2			HCM Level of Service					B	
HCM Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			78.4			Sum of lost time (s)			15.2			
Intersection Capacity Utilization			68.0%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: Bill Arp Rd Hwy 5 & Rose Ave

Saturday Afternoon PM Existing
8/20/2009

						
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Volume (veh/h)	526	180	340	386	282	70
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	572	196	370	420	307	76
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	371					
pX, platoon unblocked			0.88		0.88	0.88
vC, conflicting volume			572		1730	572
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			451		1760	451
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			62		0	86
cM capacity (veh/h)			982		51	538
Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SW 1	
Volume Total	572	196	370	420	383	
Volume Left	0	0	370	0	307	
Volume Right	0	196	0	0	76	
cSH	1700	1700	982	1700	62	
Volume to Capacity	0.34	0.12	0.38	0.25	6.12	
Queue Length 95th (ft)	0	0	44	0	Err	
Control Delay (s)	0.0	0.0	10.9	0.0	Err	
Lane LOS			B		F	
Approach Delay (s)	0.0		5.1		Err	
Approach LOS					F	
Intersection Summary						
Average Delay			1975.0			
Intersection Capacity Utilization			76.4%		ICU Level of Service	D
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

5: Concourse Pkwy & Bill Arp Rd Hwy 5

Saturday Afternoon PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	3	638	1	95	4	611	633	55	636	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5	6.5	6.5	6.5	6.0	6.5	6.5	6.0	6.5	
Lane Util. Factor			1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt			0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected			1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)			1583	1681	1686	1583	1770	3539	1583	1770	3538	
Flt Permitted			1.00	0.95	0.95	1.00	0.36	1.00	1.00	0.33	1.00	
Satd. Flow (perm)			1583	1681	1686	1583	669	3539	1583	621	3538	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3	693	1	103	4	664	688	60	691	1
RTOR Reduction (vph)	0	0	3	0	0	33	0	0	304	0	0	0
Lane Group Flow (vph)	0	0	0	346	348	70	4	664	384	60	692	0
Turn Type	Split		Perm	Split		Perm	pm+pt		Perm	pm+pt		
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases			4			3	6		6	2		
Actuated Green, G (s)			1.4	46.8	46.8	46.8	101.5	100.5	100.5	111.1	105.3	
Effective Green, g (s)			1.4	46.8	46.8	46.8	101.5	100.5	100.5	111.1	105.3	
Actuated g/C Ratio			0.01	0.26	0.26	0.26	0.56	0.56	0.56	0.62	0.58	
Clearance Time (s)			6.5	6.5	6.5	6.5	6.0	6.5	6.5	6.0	6.5	
Vehicle Extension (s)			1.0	1.0	1.0	1.0	1.0	5.0	5.0	1.0	5.0	
Lane Grp Cap (vph)			12	437	438	412	383	1976	884	420	2070	
v/s Ratio Prot				0.21	c0.21		0.00	0.19		c0.00	c0.20	
v/s Ratio Perm			c0.00			0.04	0.01		c0.24	0.08		
v/c Ratio			0.00	0.79	0.79	0.17	0.01	0.34	0.43	0.14	0.33	
Uniform Delay, d1			88.6	62.1	62.1	51.6	17.3	21.6	23.2	14.6	19.3	
Progression Factor			1.00	1.00	1.00	1.00	1.49	1.23	6.40	1.00	1.00	
Incremental Delay, d2			0.0	8.9	9.0	0.1	0.0	0.4	1.3	0.1	0.4	
Delay (s)			88.6	70.9	71.1	51.6	25.9	26.9	149.7	14.6	19.7	
Level of Service			F	E	E	D	C	C	F	B	B	
Approach Delay (s)		88.6			68.5			89.2			19.3	
Approach LOS		F			E			F			B	
Intersection Summary												
HCM Average Control Delay			65.4			HCM Level of Service				E		
HCM Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			32.0			
Intersection Capacity Utilization			57.4%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Bill Arp Rd Hwy 5 & I-20 WB Ramp

Saturday Afternoon PM Existing
8/20/2009

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	 				 			 			
Volume (vph)	492	0	462	278	895	0	0	1052	201	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	6.5	6.0			6.0			
Lane Util. Factor	0.97		1.00	1.00	0.95			0.95			
Frt	1.00		0.85	1.00	1.00			0.98			
Flt Protected	0.95		1.00	0.95	1.00			1.00			
Satd. Flow (prot)	3433		1583	1770	3539			3454			
Flt Permitted	0.95		1.00	0.05	1.00			1.00			
Satd. Flow (perm)	3433		1583	88	3539			3454			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	535	0	502	302	973	0	0	1143	218	0	0
RTOR Reduction (vph)	0	0	83	0	0	0	0	7	0	0	0
Lane Group Flow (vph)	535	0	419	302	973	0	0	1354	0	0	0
Turn Type	Prot		custom	pm+pt							
Protected Phases	8			1	6			2			
Permitted Phases			8	6							
Actuated Green, G (s)	53.2		53.2	115.3	115.3			78.4			
Effective Green, g (s)	53.2		53.2	115.3	115.3			78.4			
Actuated g/C Ratio	0.30		0.30	0.64	0.64			0.44			
Clearance Time (s)	5.5		5.5	6.5	6.0			6.0			
Vehicle Extension (s)	3.0		3.0	4.0	5.0			5.0			
Lane Grp Cap (vph)	1015		468	340	2267			1504			
v/s Ratio Prot	0.16			c0.15	0.27			0.39			
v/s Ratio Perm			c0.26	c0.42							
v/c Ratio	0.53		0.90	0.89	0.43			0.90			
Uniform Delay, d1	52.9		60.7	61.0	16.0			47.2			
Progression Factor	1.00		1.00	1.80	0.31			0.95			
Incremental Delay, d2	0.5		19.2	19.3	0.5			7.8			
Delay (s)	53.4		79.9	128.9	5.4			52.4			
Level of Service	D		E	F	A			D			
Approach Delay (s)		66.2			34.6			52.4		0.0	
Approach LOS		E			C			D		A	
Intersection Summary											
HCM Average Control Delay			50.1		HCM Level of Service			D			
HCM Volume to Capacity ratio			0.87								
Actuated Cycle Length (s)			180.0		Sum of lost time (s)			12.0			
Intersection Capacity Utilization			69.2%		ICU Level of Service			C			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
7: I-20 EB Off Ramp & Bill Arp Rd Hwy 5

Saturday Afternoon PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (vph)	87	0	361	0	0	0	0	1151	468	313	1243	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Lane Util. Factor	1.00		1.00					0.95	1.00	1.00	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770		1583					3539	1583	1770	3539	
Flt Permitted	0.95		1.00					1.00	1.00	0.11	1.00	
Satd. Flow (perm)	1770		1583					3539	1583	212	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	0	392	0	0	0	0	1251	509	340	1351	0
RTOR Reduction (vph)	0	0	70	0	0	0	0	0	224	0	0	0
Lane Group Flow (vph)	95	0	322	0	0	0	0	1251	285	340	1351	0
Turn Type	Prot		custom						Perm		pm+pt	
Protected Phases	4							6		5	2	
Permitted Phases			4						6		2	
Actuated Green, G (s)	38.6		38.6					94.3	94.3	129.9	129.9	
Effective Green, g (s)	38.6		38.6					94.3	94.3	129.9	129.9	
Actuated g/C Ratio	0.21		0.21					0.52	0.52	0.72	0.72	
Clearance Time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Vehicle Extension (s)	3.0		3.0					5.0	5.0	3.5	5.0	
Lane Grp Cap (vph)	380		339					1854	829	414	2554	
v/s Ratio Prot	0.05							0.35		c0.14	0.38	
v/s Ratio Perm			c0.20						0.18	c0.46		
v/c Ratio	0.25		0.95					0.67	0.34	0.82	0.53	
Uniform Delay, d1	58.7		69.7					31.6	24.9	41.4	11.3	
Progression Factor	1.00		1.00					1.47	5.46	1.69	1.13	
Incremental Delay, d2	0.3		35.8					1.1	0.6	8.5	0.5	
Delay (s)	59.0		105.6					47.5	136.4	78.7	13.3	
Level of Service	E		F					D	F	E	B	
Approach Delay (s)		96.5			0.0			73.2			26.4	
Approach LOS		F			A			E			C	
Intersection Summary												
HCM Average Control Delay			56.0									HCM Level of Service E
HCM Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			180.0								11.0	Sum of lost time (s)
Intersection Capacity Utilization			69.2%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Douglas Blvd & Bill Arp Rd Hwy 5

Saturday Afternoon PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	283	366	78	264	255	508	82	682	137	500	812	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3446		1770	1863	1583	1770	3450		1770	3427	
Flt Permitted	0.14	1.00		0.16	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	257	3446		291	1863	1583	1770	3450		1770	3427	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	308	398	85	287	277	552	89	741	149	543	883	236
RTOR Reduction (vph)	0	10	0	0	0	404	0	9	0	0	13	0
Lane Group Flow (vph)	308	473	0	287	277	148	89	881	0	543	1106	0
Turn Type	pm+pt			pm+pt		Perm	Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8		8						
Actuated Green, G (s)	55.4	29.0		53.4	28.0	28.0	13.7	49.3		56.3	91.9	
Effective Green, g (s)	55.4	29.0		53.4	28.0	28.0	13.7	49.3		56.3	91.9	
Actuated g/C Ratio	0.31	0.16		0.30	0.16	0.16	0.08	0.27		0.31	0.51	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	301	555		295	290	246	135	945		554	1750	
v/s Ratio Prot	c0.15	0.14		0.14	0.15		0.05	c0.26		c0.31	0.32	
v/s Ratio Perm	c0.16			0.15		0.09						
v/c Ratio	1.02	0.85		0.97	0.96	0.60	0.66	0.93		0.98	0.63	
Uniform Delay, d1	57.5	73.4		54.6	75.4	70.8	80.9	63.7		61.3	31.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.98	1.00	
Incremental Delay, d2	58.0	12.0		44.7	40.5	3.9	11.1	16.8		28.8	1.4	
Delay (s)	115.5	85.4		99.3	115.9	74.7	91.9	80.5		88.7	33.1	
Level of Service	F	F		F	F	E	F	F		F	C	
Approach Delay (s)		97.1			91.2			81.6			51.3	
Approach LOS		F			F			F			D	
Intersection Summary												
HCM Average Control Delay			75.6			HCM Level of Service			E			
HCM Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			96.7%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Stewart Pkwy & Bill Arp Rd Hwy 5

Saturday Afternoon PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	147	117	158	29	127	156	149	719	25	145	735	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.68	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1258	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	160	127	172	32	138	170	162	782	27	158	799	146
RTOR Reduction (vph)	0	0	129	0	0	152	0	0	11	0	0	70
Lane Group Flow (vph)	160	127	43	32	138	18	162	782	16	158	799	76
Turn Type	Prot		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases			4	8		8			6			2
Actuated Green, G (s)	20.7	45.5	45.5	18.8	18.8	18.8	21.7	94.1	94.1	21.4	94.3	94.3
Effective Green, g (s)	20.7	45.5	45.5	18.8	18.8	18.8	21.7	94.1	94.1	21.4	94.3	94.3
Actuated g/C Ratio	0.12	0.25	0.25	0.10	0.10	0.10	0.12	0.52	0.52	0.12	0.52	0.52
Clearance Time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	204	471	400	131	195	165	213	1850	828	210	1854	829
v/s Ratio Prot	c0.09	0.07			c0.07		c0.09	0.22		0.09	c0.23	
v/s Ratio Perm			0.03	0.03		0.01			0.01			0.05
v/c Ratio	0.78	0.27	0.11	0.24	0.71	0.11	0.76	0.42	0.02	0.75	0.43	0.09
Uniform Delay, d1	77.5	53.9	51.7	74.1	77.9	73.0	76.6	26.3	20.7	76.7	26.4	21.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.5	0.3	0.1	1.0	11.1	0.3	14.7	0.7	0.0	14.1	0.7	0.2
Delay (s)	93.9	54.2	51.8	75.0	89.1	73.3	91.4	27.0	20.7	90.8	27.1	21.7
Level of Service	F	D	D	E	F	E	F	C	C	F	C	C
Approach Delay (s)		67.2			79.9			37.6			35.5	
Approach LOS		E			E			D			D	

Intersection Summary

HCM Average Control Delay	46.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

11: John West Rd & Bright Star Rd

Saturday Afternoon PM Existing
8/20/2009



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	8	99	114	259	261	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	108	124	282	284	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				1042		
pX, platoon unblocked						
vC, conflicting volume	817	288	292			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	817	288	292			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	86	90			
cM capacity (veh/h)	312	751	1269			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	116	405	292			
Volume Left	9	124	0			
Volume Right	108	0	9			
cSH	680	1269	1700			
Volume to Capacity	0.17	0.10	0.17			
Queue Length 95th (ft)	15	8	0			
Control Delay (s)	11.4	3.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.4	3.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			3.2			
Intersection Capacity Utilization			50.7%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

12: Douglas Blvd & Bright Star Rd

Saturday Afternoon PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1	2	210	6	217	0	115	219	200	173	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frt		0.91			1.00	0.85		1.00	0.85		1.00	
Flt Protected		1.00			0.95	1.00		1.00	1.00		0.97	
Satd. Flow (prot)		1695			1777	1583		1863	1583		1814	
Flt Permitted		1.00			0.95	1.00		1.00	1.00		0.77	
Satd. Flow (perm)		1695			1777	1583		1863	1583		1427	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1	2	228	7	236	0	125	238	217	188	0
RTOR Reduction (vph)	0	2	0	0	0	178	0	0	132	0	0	0
Lane Group Flow (vph)	0	1	0	0	235	58	0	125	106	0	405	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	3	3		4	4			6			2	
Permitted Phases						4	6		6	2		
Actuated Green, G (s)		0.9			15.1	15.1		27.3	27.3		25.9	
Effective Green, g (s)		0.9			15.1	15.1		27.3	27.3		25.9	
Actuated g/C Ratio		0.01			0.25	0.25		0.44	0.44		0.42	
Clearance Time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Vehicle Extension (s)		3.0			3.0	3.0		5.0	5.0		5.0	
Lane Grp Cap (vph)		25			436	389		827	703		601	
v/s Ratio Prot		c0.00			c0.13			0.07				
v/s Ratio Perm						0.04			0.07		c0.28	
v/c Ratio		0.04			0.54	0.15		0.15	0.15		0.67	
Uniform Delay, d1		29.9			20.2	18.2		10.2	10.2		14.4	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		0.7			1.3	0.2		0.2	0.2		3.9	
Delay (s)		30.6			21.5	18.3		10.4	10.4		18.3	
Level of Service		C			C	B		B	B		B	
Approach Delay (s)		30.6			19.9			10.4			18.3	
Approach LOS		C			B			B			B	
Intersection Summary												
HCM Average Control Delay			16.6			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			61.5			Sum of lost time (s)			19.6			
Intersection Capacity Utilization			56.5%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 13: Cowan Mill Rd & Bright Star Rd

Saturday Afternoon PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	90	0	46	5	0	0	49	258	3	3	242	91
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	0	50	5	0	0	53	280	3	3	263	99
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	148	5	337	365								
Volume Left (vph)	98	5	53	3								
Volume Right (vph)	50	0	3	99								
Hadj (s)	-0.04	0.23	0.06	-0.13								
Departure Headway (s)	5.5	6.1	4.9	4.6								
Degree Utilization, x	0.23	0.01	0.45	0.47								
Capacity (veh/h)	587	493	717	746								
Control Delay (s)	10.1	9.2	11.8	11.7								
Approach Delay (s)	10.1	9.2	11.8	11.7								
Approach LOS	B	A	B	B								
Intersection Summary												
Delay				11.5								
HCM Level of Service				B								
Intersection Capacity Utilization				51.9%	ICU Level of Service	A						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

14: Central Church Rd & Bright Star Rd

Saturday Afternoon PM Existing
8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	15	121	201	25	105	199
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	132	218	27	114	216
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	677	232			246	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	677	232			246	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	84			91	
cM capacity (veh/h)	382	807			1320	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	148	246	330			
Volume Left	16	0	114			
Volume Right	132	27	0			
cSH	719	1700	1320			
Volume to Capacity	0.21	0.14	0.09			
Queue Length 95th (ft)	19	0	7			
Control Delay (s)	11.3	0.0	3.3			
Lane LOS	B		A			
Approach Delay (s)	11.3	0.0	3.3			
Approach LOS	B					
Intersection Summary						
Average Delay		3.8				
Intersection Capacity Utilization		46.7%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

15: Douglas Blvd & Arbor Place Mall Drwy

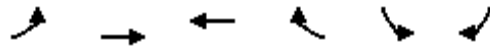
Saturday Afternoon PM Existing
8/20/2009

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Volume (vph)	614	473	78	613	468	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.27	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	498	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	667	514	85	666	509	50
RTOR Reduction (vph)	0	320	0	0	0	37
Lane Group Flow (vph)	667	194	85	666	509	13
Turn Type		Perm	pm+pt		Perm	
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	22.9	22.9	34.9	34.9	15.9	15.9
Effective Green, g (s)	22.9	22.9	34.9	34.9	15.9	15.9
Actuated g/C Ratio	0.38	0.38	0.57	0.57	0.26	0.26
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1333	596	432	2031	898	414
v/s Ratio Prot	c0.19		0.02	c0.19	c0.15	
v/s Ratio Perm		0.12	0.09			0.01
v/c Ratio	0.50	0.32	0.20	0.33	0.57	0.03
Uniform Delay, d1	14.6	13.5	6.6	6.8	19.5	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.3	0.2	0.1	0.8	0.0
Delay (s)	14.9	13.8	6.8	6.9	20.3	16.7
Level of Service	B	B	A	A	C	B
Approach Delay (s)	14.4			6.9	20.0	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay			13.4		HCM Level of Service	B
HCM Volume to Capacity ratio			0.52			
Actuated Cycle Length (s)			60.8		Sum of lost time (s)	15.0
Intersection Capacity Utilization			47.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

16: Cedar Mountain Rd & Dorris Rd

Saturday Afternoon PM Existing
8/20/2009



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Volume (vph)	24	89	66	303	250	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4		6.3	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	0.89		0.98	
Flt Protected		0.99	1.00		0.96	
Satd. Flow (prot)		1843	1656		1756	
Flt Permitted		0.87	1.00		0.96	
Satd. Flow (perm)		1617	1656		1756	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	97	72	329	272	35
RTOR Reduction (vph)	0	0	207	0	9	0
Lane Group Flow (vph)	0	123	194	0	298	0
Turn Type	Perm					
Protected Phases		2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		13.6	13.6		11.5	
Effective Green, g (s)		13.6	13.6		11.5	
Actuated g/C Ratio		0.37	0.37		0.31	
Clearance Time (s)		5.4	5.4		6.3	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		598	612		549	
v/s Ratio Prot			c0.12		c0.17	
v/s Ratio Perm		0.08				
v/c Ratio		0.21	0.32		0.54	
Uniform Delay, d1		7.9	8.3		10.5	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.4	0.6		1.1	
Delay (s)		8.3	8.9		11.6	
Level of Service		A	A		B	
Approach Delay (s)		8.3	8.9		11.6	
Approach LOS		A	A		B	
Intersection Summary						
HCM Average Control Delay			9.8		HCM Level of Service	A
HCM Volume to Capacity ratio			0.42			
Actuated Cycle Length (s)			36.8		Sum of lost time (s)	11.7
Intersection Capacity Utilization			51.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

17: Cedar Mountain Rd & S Flat Rock Rd

Saturday Afternoon PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	135	212	9	135	0	237	0	19	0	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			5.5			5.1			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.92			1.00			0.99			0.86	
Flt Protected		1.00			1.00			0.96			1.00	
Satd. Flow (prot)		1709			1857			1762			1611	
Flt Permitted		1.00			0.97			0.74			1.00	
Satd. Flow (perm)		1709			1800			1366			1611	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	147	230	10	147	0	258	0	21	0	0	2
RTOR Reduction (vph)	0	105	0	0	0	0	0	5	0	0	1	0
Lane Group Flow (vph)	0	272	0	0	157	0	0	274	0	0	1	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	2			6			4			8		
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	15.5			15.8			13.2			13.3		
Effective Green, g (s)	15.5			15.8			13.2			13.3		
Actuated g/C Ratio	0.39			0.40			0.33			0.34		
Clearance Time (s)	5.8			5.5			5.1			5.0		
Vehicle Extension (s)	5.0			5.0			3.0			3.0		
Lane Grp Cap (vph)	669			718			455			541		
v/s Ratio Prot	c0.16									0.00		
v/s Ratio Perm				0.09			c0.20					
v/c Ratio	0.41			0.22			0.60			0.00		
Uniform Delay, d1	8.7			7.8			11.0			8.7		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	0.8			0.3			2.3			0.0		
Delay (s)	9.6			8.2			13.3			8.7		
Level of Service	A			A			B			A		
Approach Delay (s)	9.6			8.2			13.3			8.7		
Approach LOS	A			A			B			A		
Intersection Summary												
HCM Average Control Delay			10.6		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			39.6		Sum of lost time (s)				10.9			
Intersection Capacity Utilization			50.1%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
19: W Stewarts Mill Rd & Woodland Dr

Saturday Afternoon PM Existing
8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	6	220	7	16	237	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	239	8	17	258	16
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	246	25	274			
Volume Left (vph)	0	8	258			
Volume Right (vph)	239	0	16			
Hadj (s)	-0.55	0.09	0.19			
Departure Headway (s)	4.1	5.0	4.7			
Degree Utilization, x	0.28	0.03	0.36			
Capacity (veh/h)	829	668	737			
Control Delay (s)	8.6	8.1	10.2			
Approach Delay (s)	8.6	8.1	10.2			
Approach LOS	A	A	B			
Intersection Summary						
Delay			9.4			
HCM Level of Service			A			
Intersection Capacity Utilization			34.6%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

20: I-20 WB Off Ramp & Chapel Hill Rd

Saturday Afternoon PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (veh/h)	0	0	0	0	0	65	396	549	0	0	704	150
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	71	430	597	0	0	765	163
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	662											
pX, platoon unblocked	0.93	0.93		0.93	0.93	0.93				0.93		
vC, conflicting volume	1924	2223	383	1840	2223	298	765			597		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1846	2166	383	1756	2166	102	765			422		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	92	49			100		
cM capacity (veh/h)	24	21	615	30	21	870	844			1057		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3					
Volume Total	71	430	298	298	383	383	163					
Volume Left	0	430	0	0	0	0	0					
Volume Right	71	0	0	0	0	0	163					
cSH	870	844	1700	1700	1700	1700	1700					
Volume to Capacity	0.08	0.51	0.18	0.18	0.23	0.23	0.10					
Queue Length 95th (ft)	7	74	0	0	0	0	0					
Control Delay (s)	9.5	13.6	0.0	0.0	0.0	0.0	0.0					
Lane LOS	A	B										
Approach Delay (s)	9.5	5.7	0.0									
Approach LOS	A											
Intersection Summary												
Average Delay	3.2											
Intersection Capacity Utilization	70.2%			ICU Level of Service					C			
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

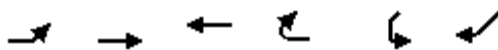
21: I-20 EB Off Ramp @ Chapel Hill Rd &

Saturday Afternoon PM Existing
8/20/2009

											
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	85	0	414	0	860	629	34	1444	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.5	5.5	5.5			
Lane Util. Factor	1.00		1.00		0.95	1.00	1.00	0.91			
Frt	1.00		0.85		1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1770		1583		3539	1583	1770	5085			
Flt Permitted	0.95		1.00		1.00	1.00	0.22	1.00			
Satd. Flow (perm)	1770		1583		3539	1583	410	5085			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	0	450	0	935	684	37	1570	0	0	0
RTOR Reduction (vph)	0	0	37	0	0	302	0	0	0	0	0
Lane Group Flow (vph)	92	0	413	0	935	382	37	1570	0	0	0
Turn Type	Prot		custom			Perm	pm+pt				
Protected Phases	4				6		5	2			
Permitted Phases			4			6	2				
Actuated Green, G (s)	44.5		44.5		83.7	83.7	95.0	95.0			
Effective Green, g (s)	44.5		44.5		83.7	83.7	95.0	95.0			
Actuated g/C Ratio	0.30		0.30		0.56	0.56	0.63	0.63			
Clearance Time (s)	5.0		5.0		5.5	5.5	5.5	5.5			
Vehicle Extension (s)	3.5		3.5		6.0	6.0	3.5	6.0			
Lane Grp Cap (vph)	525		470		1975	883	312	3221			
v/s Ratio Prot	0.05				0.26		0.00	c0.31			
v/s Ratio Perm			c0.26			0.24	0.07				
v/c Ratio	0.18		0.88		0.47	0.43	0.12	0.49			
Uniform Delay, d1	39.1		50.2		19.9	19.3	12.5	14.6			
Progression Factor	1.00		1.00		1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.2		17.1		0.8	1.5	0.2	0.5			
Delay (s)	39.3		67.3		20.7	20.9	12.7	15.1			
Level of Service	D		E		C	C	B	B			
Approach Delay (s)		62.5			20.8			15.1		0.0	
Approach LOS		E			C			B		A	
Intersection Summary											
HCM Average Control Delay			24.3			HCM Level of Service				C	
HCM Volume to Capacity ratio			0.61								
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				10.5	
Intersection Capacity Utilization			62.3%			ICU Level of Service				B	
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis
22: Bill Arp Rd Hwy 5 & Bright Star Rd

Saturday Afternoon PM Existing
8/20/2009



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↩	↩		↩	
Volume (veh/h)	113	388	354	4	0	115
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	123	422	385	4	0	125
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	389				1054	387
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	389				1054	387
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				100	81
cM capacity (veh/h)	1169				224	661
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	545	389	125			
Volume Left	123	0	0			
Volume Right	0	4	125			
cSH	1169	1700	661			
Volume to Capacity	0.11	0.23	0.19			
Queue Length 95th (ft)	9	0	17			
Control Delay (s)	2.8	0.0	11.7			
Lane LOS	A		B			
Approach Delay (s)	2.8	0.0	11.7			
Approach LOS			B			
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization			62.7%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

112: West Strickland St & Bankhead Hwy RR Crossing

Saturday Afternoon PM Existing
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	11	214	18	6	0	242	6	15	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	12	233	20	7	0	263	7	16	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	544	549	0	779	541	15	0			23		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	544	549	0	779	541	15	0			23		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	97	79	91	98	100	84			100		
cM capacity (veh/h)	389	372	1085	210	376	1065	1623			1592		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	245	26	286	0								
Volume Left	0	20	263	0								
Volume Right	233	0	16	0								
cSH	992	236	1623	1700								
Volume to Capacity	0.25	0.11	0.16	0.00								
Queue Length 95th (ft)	24	9	14	0								
Control Delay (s)	9.8	22.1	7.1	0.0								
Lane LOS	A	C	A									
Approach Delay (s)	9.8	22.1	7.1	0.0								
Approach LOS	A	C										
Intersection Summary												
Average Delay			9.0									
Intersection Capacity Utilization			37.3%	ICU Level of Service						A		
Analysis Period (min)			15									

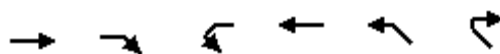
2014 NO-BUILD OPERATIONS

HCM Unsignalized Intersection Capacity Analysis

1: Bankhead Hwy US78 & John West Rd

2014 No-Build AM

8/20/2009



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑	↑		↑	↑	
Volume (veh/h)	524	116	8	331	79	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	570	126	9	360	86	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			696		947	570
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			696		947	570
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		70	98
cM capacity (veh/h)			900		287	521
Direction, Lane #	EB 1	EB 2	WB 1	NW 1		
Volume Total	570	126	368	98		
Volume Left	0	0	9	86		
Volume Right	0	126	0	12		
cSH	1700	1700	900	304		
Volume to Capacity	0.34	0.07	0.01	0.32		
Queue Length 95th (ft)	0	0	1	34		
Control Delay (s)	0.0	0.0	0.3	22.4		
Lane LOS			A	C		
Approach Delay (s)	0.0		0.3	22.4		
Approach LOS				C		
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization			39.3%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Bankhead Hwy US 78 & Bill Arp Rd Hwy 5

2014 No-Build AM

8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	527	118	257	394	73	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.92	
Flt Protected	1.00	1.00	0.95	1.00	0.98	
Satd. Flow (prot)	1863	1583	1770	1863	1677	
Flt Permitted	1.00	1.00	0.22	1.00	0.98	
Satd. Flow (perm)	1863	1583	403	1863	1677	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	573	128	279	428	79	123
RTOR Reduction (vph)	0	73	0	0	64	0
Lane Group Flow (vph)	573	55	279	428	138	0
Turn Type		Perm	pm+pt			
Protected Phases	6		5	2	4	
Permitted Phases		6	2			
Actuated Green, G (s)	30.0	30.0	47.9	47.9	10.0	
Effective Green, g (s)	30.0	30.0	47.9	47.9	10.0	
Actuated g/C Ratio	0.43	0.43	0.69	0.69	0.14	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	
Lane Grp Cap (vph)	800	679	509	1277	240	
v/s Ratio Prot	c0.31		c0.09	0.23	c0.08	
v/s Ratio Perm		0.03	0.28			
v/c Ratio	0.72	0.08	0.55	0.34	0.57	
Uniform Delay, d1	16.4	11.8	7.8	4.5	28.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.8	0.1	0.6	0.3	2.1	
Delay (s)	20.2	11.9	8.5	4.8	30.0	
Level of Service	C	B	A	A	C	
Approach Delay (s)	18.7			6.3	30.0	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay			14.7		HCM Level of Service	B
HCM Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			69.9		Sum of lost time (s)	18.0
Intersection Capacity Utilization			68.0%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Bankhead Hwy US78 & Rose Ave

2014 No-Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	482	44	84	257	24	17	209	142	107	277	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.95			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1770	1839		1770	1839			1762			1824	
Flt Permitted	0.57	1.00		0.16	1.00			0.97			0.71	
Satd. Flow (perm)	1070	1839		295	1839			1717			1318	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	524	48	91	279	26	18	227	154	116	301	26
RTOR Reduction (vph)	0	2	0	0	3	0	0	18	0	0	2	0
Lane Group Flow (vph)	25	570	0	91	302	0	0	381	0	0	441	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		6		5	2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	42.6	42.6		52.8	52.8			46.0			46.0	
Effective Green, g (s)	42.6	42.6		52.8	52.8			46.0			46.0	
Actuated g/C Ratio	0.39	0.39		0.48	0.48			0.42			0.42	
Clearance Time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Vehicle Extension (s)	6.0	6.0		3.0	6.0			3.0			8.0	
Lane Grp Cap (vph)	419	719		212	892			725			557	
v/s Ratio Prot		c0.31		0.02	c0.16							
v/s Ratio Perm	0.02			0.19				0.22			c0.33	
v/c Ratio	0.06	0.79		0.43	0.34			0.53			0.79	
Uniform Delay, d1	20.7	29.2		20.1	17.3			23.3			27.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.2	7.2		1.4	0.6			0.7			10.2	
Delay (s)	20.8	36.5		21.5	17.9			24.0			37.5	
Level of Service	C	D		C	B			C			D	
Approach Delay (s)		35.8			18.8			24.0			37.5	
Approach LOS		D			B			C			D	
Intersection Summary												
HCM Average Control Delay			30.0			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			108.9			Sum of lost time (s)			15.2			
Intersection Capacity Utilization			92.1%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Concourse Pkwy & Bill Arp Rd Hwy 5

2014 No-Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	193	0	42	0	970	116	35	739	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5		6.5	6.5	6.0	6.5	
Lane Util. Factor				0.95	0.95	1.00		0.95	1.00	1.00	0.95	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.95	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)				1681	1681	1583		3539	1583	1770	3539	
Flt Permitted				0.95	0.95	1.00		1.00	1.00	0.23	1.00	
Satd. Flow (perm)				1681	1681	1583		3539	1583	431	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	210	0	46	0	1054	126	38	803	0
RTOR Reduction (vph)	0	0	0	0	0	42	0	0	34	0	0	0
Lane Group Flow (vph)	0	0	0	105	105	4	0	1054	92	38	803	0
Turn Type	Split		Perm	Split		Perm	pm+pt		Perm	pm+pt		
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases			4			3	6		6		2	
Actuated Green, G (s)				11.7	11.7	11.7		95.3	95.3	105.3	105.3	
Effective Green, g (s)				11.7	11.7	11.7		95.3	95.3	105.3	105.3	
Actuated g/C Ratio				0.09	0.09	0.09		0.73	0.73	0.81	0.81	
Clearance Time (s)				6.5	6.5	6.5		6.5	6.5	6.0	6.5	
Vehicle Extension (s)				1.0	1.0	1.0		5.0	5.0	1.0	5.0	
Lane Grp Cap (vph)				151	151	142		2594	1160	390	2867	
v/s Ratio Prot				c0.06	0.06			c0.30		0.00	c0.23	
v/s Ratio Perm						0.00			0.06	0.08		
v/c Ratio				0.70	0.70	0.03		0.41	0.08	0.10	0.28	
Uniform Delay, d1				57.4	57.4	54.0		6.6	4.9	3.3	3.0	
Progression Factor				1.00	1.00	1.00		1.01	1.71	0.65	0.63	
Incremental Delay, d2				10.7	10.7	0.0		0.4	0.1	0.0	0.2	
Delay (s)				68.1	68.1	54.0		7.1	8.5	2.2	2.2	
Level of Service				E	E	D		A	A	A	A	
Approach Delay (s)		0.0			65.5			7.3			2.2	
Approach LOS		A			E			A			A	
Intersection Summary												
HCM Average Control Delay			11.9				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)		19.5			
Intersection Capacity Utilization			45.8%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Bill Arp Rd Hwy 5 & I-20 WB Ramp

2014 No-Build AM

8/20/2009

												
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	
Lane Configurations	 				 			 				
Volume (vph)	337	0	268	128	803	0	0	828	87	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.5		5.5	6.5	6.0			6.0	6.0			
Lane Util. Factor	0.97		1.00	1.00	0.95			0.95	1.00			
Frt	1.00		0.85	1.00	1.00			1.00	0.85			
Flt Protected	0.95		1.00	0.95	1.00			1.00	1.00			
Satd. Flow (prot)	3433		1583	1770	3539			3539	1583			
Flt Permitted	0.95		1.00	0.28	1.00			1.00	1.00			
Satd. Flow (perm)	3433		1583	526	3539			3539	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	366	0	291	139	873	0	0	900	95	0	0	
RTOR Reduction (vph)	0	0	147	0	0	0	0	0	33	0	0	
Lane Group Flow (vph)	366	0	144	139	873	0	0	900	62	0	0	
Turn Type	Prot		custom	pm+pt					Perm			
Protected Phases	8			1	6			2				
Permitted Phases			8	6					2			
Actuated Green, G (s)	20.1		20.1	98.4	98.4			85.4	85.4			
Effective Green, g (s)	20.1		20.1	98.4	98.4			85.4	85.4			
Actuated g/C Ratio	0.15		0.15	0.76	0.76			0.66	0.66			
Clearance Time (s)	5.5		5.5	6.5	6.0			6.0	6.0			
Vehicle Extension (s)	3.0		3.0	4.0	5.0			5.0	5.0			
Lane Grp Cap (vph)	531		245	460	2679			2325	1040			
v/s Ratio Prot	c0.11			0.02	c0.25			c0.25				
v/s Ratio Perm			0.09	0.21					0.04			
v/c Ratio	0.69		0.59	0.30	0.33			0.39	0.06			
Uniform Delay, d1	52.0		51.1	8.7	5.1			10.3	8.0			
Progression Factor	1.00		1.00	0.44	0.56			0.46	0.00			
Incremental Delay, d2	3.7		3.6	0.5	0.3			0.5	0.1			
Delay (s)	55.7		54.7	4.3	3.2			5.2	0.1			
Level of Service	E		D	A	A			A	A			
Approach Delay (s)		55.3			3.3			4.7		0.0		
Approach LOS		E			A			A		A		
Intersection Summary												
HCM Average Control Delay			16.6		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				11.5			
Intersection Capacity Utilization			103.4%		ICU Level of Service				G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: I-20 EB Off Ramp & Bill Arp Rd Hwy 5

2014 No-Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (vph)	226	0	240	0	0	0	0	689	875	407	740	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Lane Util. Factor	1.00		1.00					0.95	1.00	1.00	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770		1583					3539	1583	1770	3539	
Flt Permitted	0.95		1.00					1.00	1.00	0.30	1.00	
Satd. Flow (perm)	1770		1583					3539	1583	554	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	246	0	261	0	0	0	0	749	951	442	804	0
RTOR Reduction (vph)	0	0	217	0	0	0	0	0	280	0	0	0
Lane Group Flow (vph)	246	0	44	0	0	0	0	749	671	442	804	0
Turn Type	Prot		custom						Perm		pm+pt	
Protected Phases	4							6		5	2	
Permitted Phases			4						6		2	
Actuated Green, G (s)	21.5		21.5					74.2	74.2	97.0	97.0	
Effective Green, g (s)	21.5		21.5					74.2	74.2	97.0	97.0	
Actuated g/C Ratio	0.17		0.17					0.57	0.57	0.75	0.75	
Clearance Time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Vehicle Extension (s)	3.0		3.0					5.0	5.0	3.5	5.0	
Lane Grp Cap (vph)	293		262					2020	904	575	2641	
v/s Ratio Prot	c0.14							0.21		c0.10	0.23	
v/s Ratio Perm			0.03						0.42	c0.47		
v/c Ratio	0.84		0.17					0.37	0.74	0.77	0.30	
Uniform Delay, d1	52.6		46.6					15.2	20.8	8.1	5.4	
Progression Factor	1.00		1.00					0.50	0.76	1.87	0.65	
Incremental Delay, d2	18.6		0.3					0.2	2.3	6.0	0.3	
Delay (s)	71.2		46.9					7.8	18.0	21.1	3.8	
Level of Service	E		D					A	B	C	A	
Approach Delay (s)		58.7			0.0			13.5			9.9	
Approach LOS		E			A			B			A	
Intersection Summary												
HCM Average Control Delay			18.8									
HCM Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			130.0									
Intersection Capacity Utilization			103.4%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Douglas Blvd & Bill Arp Rd Hwy 5

2014 No-Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	387	86	28	97	120	85	40	1065	167	198	620	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Flt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3410		1770	1863	1583	1770	3467		1770	3411	
Flt Permitted	0.37	1.00		0.67	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	693	3410		1256	1863	1583	1770	3467		1770	3411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	421	93	30	105	130	92	43	1158	182	215	674	215
RTOR Reduction (vph)	0	23	0	0	0	81	0	10	0	0	23	0
Lane Group Flow (vph)	421	100	0	105	130	11	43	1330	0	215	866	0
Turn Type	pm+pt			pm+pt		Perm	Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8		8						
Actuated Green, G (s)	45.3	30.3		25.0	15.0	15.0	8.0	51.0		18.7	61.7	
Effective Green, g (s)	45.3	30.3		25.0	15.0	15.0	8.0	51.0		18.7	61.7	
Actuated g/C Ratio	0.35	0.23		0.19	0.12	0.12	0.06	0.39		0.14	0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	451	795		281	215	183	109	1360		255	1619	
v/s Ratio Prot	c0.18	0.03		0.03	0.07		0.02	c0.38		c0.12	0.25	
v/s Ratio Perm	c0.14			0.04		0.01						
v/c Ratio	0.93	0.13		0.37	0.60	0.06	0.39	0.98		0.84	0.53	
Uniform Delay, d1	37.1	39.4		45.1	54.7	51.2	58.7	39.0		54.2	24.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.94	0.76	
Incremental Delay, d2	26.7	0.1		1.1	6.9	0.3	3.2	19.7		21.5	1.2	
Delay (s)	63.8	39.5		46.2	61.6	51.5	61.9	58.7		72.7	19.5	
Level of Service	E	D		D	E	D	E	E		E	B	
Approach Delay (s)		58.3			53.8			58.8			29.9	
Approach LOS		E			D			E			C	
Intersection Summary												
HCM Average Control Delay			48.7			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			86.3%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Stewart Pkwy & Bill Arp Rd Hwy 5

2014 No-Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	95	44	58	116	193	102	1131	24	135	553	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.69	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1286	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	103	48	63	126	210	111	1229	26	147	601	71
RTOR Reduction (vph)	0	0	36	0	0	190	0	0	12	0	0	34
Lane Group Flow (vph)	128	103	12	63	126	20	111	1229	15	147	601	37
Turn Type	Prot		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases			4	8		8			6			2
Actuated Green, G (s)	12.7	31.3	31.3	12.6	12.6	12.6	12.8	65.0	65.0	14.7	67.4	67.4
Effective Green, g (s)	12.7	31.3	31.3	12.6	12.6	12.6	12.8	65.0	65.0	14.7	67.4	67.4
Actuated g/C Ratio	0.10	0.24	0.24	0.10	0.10	0.10	0.10	0.50	0.50	0.11	0.52	0.52
Clearance Time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	173	449	381	125	181	153	174	1770	792	200	1835	821
v/s Ratio Prot	c0.07	0.06			c0.07		0.06	c0.35		c0.08	0.17	
v/s Ratio Perm			0.01	0.05		0.01			0.01			0.02
v/c Ratio	0.74	0.23	0.03	0.50	0.70	0.13	0.64	0.69	0.02	0.74	0.33	0.04
Uniform Delay, d1	57.0	39.7	37.7	55.7	56.8	53.7	56.4	24.9	16.4	55.8	18.2	15.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.3	0.3	0.0	3.2	11.0	0.4	7.5	2.3	0.0	13.1	0.5	0.1
Delay (s)	70.3	39.9	37.8	58.9	67.9	54.1	63.8	27.2	16.4	68.9	18.6	15.5
Level of Service	E	D	D	E	E	D	E	C	B	E	B	B
Approach Delay (s)		53.5			59.2			29.9			27.4	
Approach LOS		D			E			C			C	
Intersection Summary												
HCM Average Control Delay			35.6				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			25.0		
Intersection Capacity Utilization			67.8%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

11: John West Rd & Bright Star Rd

2014 No-Build AM

8/20/2009



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	243	196	252	240	57
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	264	213	274	261	62
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				1042		
pX, platoon unblocked						
vC, conflicting volume	992	292	323			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	992	292	323			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	65	83			
cM capacity (veh/h)	226	747	1237			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	297	487	323			
Volume Left	33	213	0			
Volume Right	264	0	62			
cSH	596	1237	1700			
Volume to Capacity	0.50	0.17	0.19			
Queue Length 95th (ft)	69	16	0			
Control Delay (s)	16.9	4.7	0.0			
Lane LOS	C	A				
Approach Delay (s)	16.9	4.7	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			6.6			
Intersection Capacity Utilization			66.9%	ICU Level of Service		C
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

12: Douglas Blvd & Bright Star Rd

2014 No-Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	3	99	0	184	2	289	352	290	209	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frt		0.86			1.00	0.85		1.00	0.85		1.00	
Flt Protected		1.00			0.95	1.00		1.00	1.00		0.97	
Satd. Flow (prot)		1611			1770	1583		1862	1583		1809	
Flt Permitted		1.00			0.95	1.00		1.00	1.00		0.63	
Satd. Flow (perm)		1611			1770	1583		1859	1583		1180	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3	108	0	200	2	314	383	315	227	2
RTOR Reduction (vph)	0	3	0	0	0	169	0	0	161	0	0	0
Lane Group Flow (vph)	0	0	0	0	108	31	0	316	222	0	544	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	3	3		4	4			6			2	
Permitted Phases						4	6		6	2		
Actuated Green, G (s)		0.9			11.2	11.2		41.8	41.8		40.4	
Effective Green, g (s)		0.9			11.2	11.2		41.8	41.8		40.4	
Actuated g/C Ratio		0.01			0.16	0.16		0.58	0.58		0.56	
Clearance Time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Vehicle Extension (s)		3.0			3.0	3.0		5.0	5.0		5.0	
Lane Grp Cap (vph)		20			275	246		1078	918		661	
v/s Ratio Prot		c0.00			c0.06							
v/s Ratio Perm						0.02		0.17	0.14		c0.46	
v/c Ratio		0.00			0.39	0.13		0.29	0.24		0.82	
Uniform Delay, d1		35.2			27.4	26.2		7.7	7.4		12.9	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		0.0			0.9	0.2		0.3	0.3		9.1	
Delay (s)		35.2			28.3	26.5		8.0	7.7		22.1	
Level of Service		D			C	C		A	A		C	
Approach Delay (s)		35.2			27.1			7.8			22.1	
Approach LOS		D			C			A			C	
Intersection Summary												
HCM Average Control Delay			16.7				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			72.1				Sum of lost time (s)			19.6		
Intersection Capacity Utilization			70.7%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 13: Cowan Mill Rd & Bright Star Rd

2014 No-Build AM
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	190	1	56	4	4	8	30	460	3	1	273	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	207	1	61	4	4	9	33	500	3	1	297	45
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	268	17	536	342								
Volume Left (vph)	207	4	33	1								
Volume Right (vph)	61	9	3	45								
Hadj (s)	0.05	-0.22	0.04	-0.04								
Departure Headway (s)	6.3	6.9	5.5	5.7								
Degree Utilization, x	0.47	0.03	0.82	0.54								
Capacity (veh/h)	531	440	643	594								
Control Delay (s)	14.9	10.1	28.2	15.2								
Approach Delay (s)	14.9	10.1	28.2	15.2								
Approach LOS	B	B	D	C								
Intersection Summary												
Delay			21.1									
HCM Level of Service			C									
Intersection Capacity Utilization			73.6%		ICU Level of Service					D		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

14: Central Church Rd & Bright Star Rd

2014 No-Build AM

8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	8	99	430	26	141	209
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	108	467	28	153	227
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1015	482			496	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1015	482			496	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	82			86	
cM capacity (veh/h)	226	585			1068	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	116	496	380			
Volume Left	9	0	153			
Volume Right	108	28	0			
cSH	523	1700	1068			
Volume to Capacity	0.22	0.29	0.14			
Queue Length 95th (ft)	21	0	13			
Control Delay (s)	13.8	0.0	4.5			
Lane LOS	B		A			
Approach Delay (s)	13.8	0.0	4.5			
Approach LOS	B					
Intersection Summary						
Average Delay		3.3				
Intersection Capacity Utilization		59.6%		ICU Level of Service		B
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

15: Douglas Blvd & Arbor Place Mall Drwy

2014 No-Build AM

8/20/2009

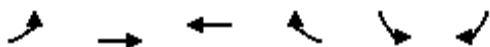
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Volume (vph)	330	48	10	293	26	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.44	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	813	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	359	52	11	318	28	7
RTOR Reduction (vph)	0	23	0	0	0	7
Lane Group Flow (vph)	359	29	11	318	28	0
Turn Type		Perm	pm+pt		Perm	
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	21.6	21.6	27.6	27.6	1.0	1.0
Effective Green, g (s)	21.6	21.6	27.6	27.6	1.0	1.0
Actuated g/C Ratio	0.56	0.56	0.72	0.72	0.03	0.03
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1980	886	606	2530	89	41
v/s Ratio Prot	c0.10		0.00	c0.09	c0.01	
v/s Ratio Perm		0.02	0.01			0.00
v/c Ratio	0.18	0.03	0.02	0.13	0.31	0.00
Uniform Delay, d1	4.2	3.8	1.9	1.7	18.5	18.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.0	0.0	0.0	2.0	0.0
Delay (s)	4.2	3.8	1.9	1.7	20.5	18.4
Level of Service	A	A	A	A	C	B
Approach Delay (s)	4.2			1.8	20.1	
Approach LOS	A			A	C	
Intersection Summary						
HCM Average Control Delay			3.9		HCM Level of Service	A
HCM Volume to Capacity ratio			0.20			
Actuated Cycle Length (s)			38.6		Sum of lost time (s)	15.0
Intersection Capacity Utilization			22.5%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

16: Cedar Mountain Rd & Dorris Rd

2014 No-Build AM

8/20/2009



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	47	110	64	174	608	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4		6.3	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	0.90		0.99	
Flt Protected		0.99	1.00		0.96	
Satd. Flow (prot)		1835	1679		1763	
Flt Permitted		0.84	1.00		0.96	
Satd. Flow (perm)		1561	1679		1763	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	120	70	189	661	49
RTOR Reduction (vph)	0	0	132	0	5	0
Lane Group Flow (vph)	0	171	127	0	705	0
Turn Type	Perm					
Protected Phases		2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		18.2	18.2		30.1	
Effective Green, g (s)		18.2	18.2		30.1	
Actuated g/C Ratio		0.30	0.30		0.50	
Clearance Time (s)		5.4	5.4		6.3	
Vehicle Extension (s)		3.0	3.0		5.0	
Lane Grp Cap (vph)		474	509		884	
v/s Ratio Prot			0.08		c0.40	
v/s Ratio Perm		c0.11				
v/c Ratio		0.36	0.25		0.80	
Uniform Delay, d1		16.3	15.8		12.4	
Progression Factor		1.00	0.65		1.00	
Incremental Delay, d2		2.1	1.1		5.8	
Delay (s)		18.5	11.4		18.2	
Level of Service		B	B		B	
Approach Delay (s)		18.5	11.4		18.2	
Approach LOS		B	B		B	
Intersection Summary						
HCM Average Control Delay			16.7		HCM Level of Service	B
HCM Volume to Capacity ratio			0.63			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	11.7
Intersection Capacity Utilization			74.7%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

17: Cedar Mountain Rd & S Flat Rock Rd

2014 No-Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	303	389	25	114	59	117	23	18	48	11	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			5.5			5.1			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.92			0.96			0.98			1.00	
Flt Protected		1.00			0.99			0.96			0.96	
Satd. Flow (prot)		1722			1777			1768			1787	
Flt Permitted		1.00			0.89			0.74			0.73	
Satd. Flow (perm)		1720			1596			1358			1353	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	329	423	27	124	64	127	25	20	52	12	1
RTOR Reduction (vph)	0	66	0	0	22	0	0	8	0	0	1	0
Lane Group Flow (vph)	0	690	0	0	193	0	0	164	0	0	64	0
Turn Type	Perm		Perm		Perm		Perm		Perm		Perm	
Protected Phases	2		6		4		8					
Permitted Phases	2		6		4		8					
Actuated Green, G (s)	39.5		39.8		9.6		9.7					
Effective Green, g (s)	39.5		39.8		9.6		9.7					
Actuated g/C Ratio	0.66		0.66		0.16		0.16					
Clearance Time (s)	5.8		5.5		5.1		5.0					
Vehicle Extension (s)	5.0		5.0		3.0		3.0					
Lane Grp Cap (vph)	1132		1059		217		219					
v/s Ratio Prot												
v/s Ratio Perm	c0.40		0.12		c0.12		0.05					
v/c Ratio	0.61		0.18		0.75		0.29					
Uniform Delay, d1	5.9		3.9		24.1		22.1					
Progression Factor	0.26		1.00		1.00		1.00					
Incremental Delay, d2	1.8		0.4		13.8		0.7					
Delay (s)	3.4		4.2		37.9		22.9					
Level of Service	A		A		D		C					
Approach Delay (s)	3.4		4.2		37.9		22.9					
Approach LOS	A		A		D		C					
Intersection Summary												
HCM Average Control Delay			9.5		HCM Level of Service			A				
HCM Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)			10.9				
Intersection Capacity Utilization			58.9%		ICU Level of Service			B				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
19: W Stewarts Mill Rd & Woodland Dr

2014 No-Build AM
8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	3	190	9	29	329	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	207	10	32	358	8
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	210	41	365			
Volume Left (vph)	0	10	358			
Volume Right (vph)	207	0	8			
Hadj (s)	-0.56	0.08	0.22			
Departure Headway (s)	4.3	5.2	4.7			
Degree Utilization, x	0.25	0.06	0.48			
Capacity (veh/h)	771	634	740			
Control Delay (s)	8.8	8.5	11.9			
Approach Delay (s)	8.8	8.5	11.9			
Approach LOS	A	A	B			
Intersection Summary						
Delay			10.6			
HCM Level of Service			B			
Intersection Capacity Utilization			37.2%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

20: I-20 WB Off Ramp & Chapel Hill Rd

2014 No-Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (veh/h)	0	0	0	0	0	120	218	1308	0	0	571	163
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	130	237	1422	0	0	621	177
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	662											
pX, platoon unblocked	0.76	0.76		0.76	0.76	0.76				0.76		
vC, conflicting volume	1805	2516	310	2206	2516	711	621			1422		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1422	2361	310	1951	2361	0	621			915		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	84	75			100		
cM capacity (veh/h)	50	20	686	24	20	821	956			561		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3					
Volume Total	130	237	711	711	310	310	177					
Volume Left	0	237	0	0	0	0	0					
Volume Right	130	0	0	0	0	0	177					
cSH	821	956	1700	1700	1700	1700	1700					
Volume to Capacity	0.16	0.25	0.42	0.42	0.18	0.18	0.10					
Queue Length 95th (ft)	14	24	0	0	0	0	0					
Control Delay (s)	10.2	10.0	0.0	0.0	0.0	0.0	0.0					
Lane LOS	B	B										
Approach Delay (s)	10.2	1.4	0.0									
Approach LOS	B											
Intersection Summary												
Average Delay	1.4											
Intersection Capacity Utilization	50.3%			ICU Level of Service				A				
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis
21: I-20 EB Off Ramp @ Chapel Hill Rd &

2014 No-Build AM
8/20/2009

											
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	494	0	504	0	1062	866	105	738	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Lane Util. Factor	1.00		1.00		0.95	1.00	1.00	0.91			
Frt	1.00		0.85		1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1770		1583		3539	1583	1770	5085			
Flt Permitted	0.95		1.00		1.00	1.00	0.12	1.00			
Satd. Flow (perm)	1770		1583		3539	1583	219	5085			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	537	0	548	0	1154	941	114	802	0	0	0
RTOR Reduction (vph)	0	0	100	0	0	500	0	0	0	0	0
Lane Group Flow (vph)	537	0	448	0	1154	441	114	802	0	0	0
Turn Type	Prot	custom				Perm	pm+pt				
Protected Phases	4				6		5	2			
Permitted Phases			4			6		2			
Actuated Green, G (s)	41.4		41.4		56.2	56.2	68.1	68.1			
Effective Green, g (s)	41.4		41.4		56.2	56.2	68.1	68.1			
Actuated g/C Ratio	0.34		0.34		0.47	0.47	0.57	0.57			
Clearance Time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Vehicle Extension (s)	3.5		3.5		6.0	6.0	3.5	6.0			
Lane Grp Cap (vph)	611		546		1657	741	213	2886			
v/s Ratio Prot	c0.30				c0.33		c0.03	0.16			
v/s Ratio Perm			0.28			0.28	0.27				
v/c Ratio	0.88		0.82		0.70	0.59	0.54	0.28			
Uniform Delay, d1	36.9		35.9		25.2	23.5	17.7	13.3			
Progression Factor	1.00		1.00		1.00	1.00	1.00	1.00			
Incremental Delay, d2	13.8		9.8		2.4	3.5	2.9	0.2			
Delay (s)	50.8		45.7		27.6	27.0	20.6	13.6			
Level of Service	D		D		C	C	C	B			
Approach Delay (s)		48.2			27.3			14.4		0.0	
Approach LOS		D			C			B		A	
Intersection Summary											
HCM Average Control Delay			30.0		HCM Level of Service			C			
HCM Volume to Capacity ratio			0.76								
Actuated Cycle Length (s)			120.0		Sum of lost time (s)			15.5			
Intersection Capacity Utilization			74.6%		ICU Level of Service			D			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

30: Bill Arp Rd Hwy 5 & Bright Star Rd

2014 No-Build AM

8/20/2009

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Volume (veh/h)	304	846	0	0	419	7	0	0	0	4	0	150		
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	330	920	0	0	455	8	0	0	0	4	0	163		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)												8		
Median type	None			None										
Median storage (veh)														
Upstream signal (ft)														
pX, platoon unblocked														
vC, conflicting volume	455				920				2036	2036	920	2036	2036	455
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	455				920				2036	2036	920	2036	2036	455
tC, single (s)	4.1				4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)														
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	70				100				100	100	100	87	100	73
cM capacity (veh/h)	1105				742				24	40	328	32	40	605
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1						
Volume Total	330	920	0	0	455	8	0	167						
Volume Left	330	0	0	0	0	0	0	4						
Volume Right	0	0	0	0	0	8	0	163						
cSH	1105	1700	1700	1700	1700	1700	1700	621						
Volume to Capacity	0.30	0.54	0.00	0.00	0.27	0.00	0.00	0.27						
Queue Length 95th (ft)	32	0	0	0	0	0	0	27						
Control Delay (s)	9.6	0.0	0.0	0.0	0.0	0.0	0.0	16.2						
Lane LOS	A							A	C					
Approach Delay (s)	2.5				0.0				0.0	16.2				
Approach LOS							A	C						
Intersection Summary														
Average Delay	3.1													
Intersection Capacity Utilization	61.2%			ICU Level of Service				B						
Analysis Period (min)	15													

HCM Signalized Intersection Capacity Analysis

33: Bill Arp Rd Hwy 5 & Rose Ave

2014 No-Build AM

8/20/2009

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	30	524	0	0	381	608	0	0	0	267	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0				5.0		5.0
Lane Util. Factor	1.00	0.95			1.00	1.00				1.00		1.00
Flt	1.00	1.00			1.00	0.85				1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (prot)	1770	3539			1863	1583				1770		1583
Flt Permitted	0.47	1.00			1.00	1.00				0.95		1.00
Satd. Flow (perm)	868	3539			1863	1583				1770		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	570	0	0	414	661	0	0	0	290	0	34
RTOR Reduction (vph)	0	0	0	0	0	240	0	0	0	0	0	27
Lane Group Flow (vph)	33	570	0	0	414	421	0	0	0	290	0	7
Turn Type	pm+pt			pm+pt		Perm	pm+pt			pm+pt		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	93.6	93.6			82.8	82.8				26.4		26.4
Effective Green, g (s)	93.6	93.6			82.8	82.8				26.4		26.4
Actuated g/C Ratio	0.72	0.72			0.64	0.64				0.20		0.20
Clearance Time (s)	5.0	5.0			5.0	5.0				5.0		5.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0		3.0
Lane Grp Cap (vph)	665	2548			1187	1008				359		321
v/s Ratio Prot	0.00	c0.16			0.22					c0.16		
v/s Ratio Perm	0.03					c0.27						0.00
v/c Ratio	0.05	0.22			0.35	0.42				0.81		0.02
Uniform Delay, d1	8.2	6.1			11.0	11.7				49.4		41.5
Progression Factor	1.00	1.00			0.37	2.50				1.00		1.00
Incremental Delay, d2	0.0	0.2			0.8	1.2				12.5		0.0
Delay (s)	8.3	6.3			4.8	30.4				61.9		41.5
Level of Service	A	A			A	C				E		D
Approach Delay (s)		6.4			20.5			0.0			59.8	
Approach LOS		A			C			A			E	
Intersection Summary												
HCM Average Control Delay		22.6			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		130.0			Sum of lost time (s)			10.0				
Intersection Capacity Utilization		50.1%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

112: West Strickland St & Bankhead Hwy RR Crossing

2014 No-Build AM

8/20/2009

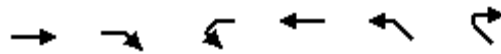
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	29	427	14	10	1	176	2	24	2	1	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	32	464	15	11	1	191	2	26	2	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	410	416	1	883	403	15	1			28		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	410	416	1	883	403	15	1			28		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	93	57	88	98	100	88			100		
cM capacity (veh/h)	493	464	1083	131	472	1064	1622			1585		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	496	27	220	3								
Volume Left	0	15	191	2								
Volume Right	464	1	26	0								
cSH	999	194	1622	1585								
Volume to Capacity	0.50	0.14	0.12	0.00								
Queue Length 95th (ft)	71	12	10	0								
Control Delay (s)	12.1	26.5	6.7	4.9								
Lane LOS	B	D	A	A								
Approach Delay (s)	12.1	26.5	6.7	4.9								
Approach LOS	B	D										
Intersection Summary												
Average Delay			11.0									
Intersection Capacity Utilization			49.2%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

1: Bankhead Hwy US78 & John West Rd

2014 No-Build PM

8/20/2009



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑	↗		↖	↘	
Volume (veh/h)	330	128	7	710	228	24
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	359	139	8	772	248	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			498		1146	359
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			498		1146	359
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		0	96
cM capacity (veh/h)			1066		219	686
Direction, Lane #	EB 1	EB 2	WB 1	NW 1		
Volume Total	359	139	779	274		
Volume Left	0	0	8	248		
Volume Right	0	139	0	26		
cSH	1700	1700	1066	234		
Volume to Capacity	0.21	0.08	0.01	1.17		
Queue Length 95th (ft)	0	0	1	323		
Control Delay (s)	0.0	0.0	0.2	156.5		
Lane LOS			A	F		
Approach Delay (s)	0.0		0.2	156.5		
Approach LOS				F		
Intersection Summary						
Average Delay			27.7			
Intersection Capacity Utilization			63.7%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Bankhead Hwy US 78 & Bill Arp Rd Hwy 5

2014 No-Build PM

8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	321	116	161	620	183	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.91	
Flt Protected	1.00	1.00	0.95	1.00	0.98	
Satd. Flow (prot)	1863	1583	1770	1863	1670	
Flt Permitted	1.00	1.00	0.30	1.00	0.98	
Satd. Flow (perm)	1863	1583	568	1863	1670	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	349	126	175	674	199	368
RTOR Reduction (vph)	0	89	0	0	79	0
Lane Group Flow (vph)	349	37	175	674	488	0
Turn Type		Perm	pm+pt			
Protected Phases	6		5	2	4	
Permitted Phases		6	2			
Actuated Green, G (s)	21.8	21.8	36.1	36.1	25.4	
Effective Green, g (s)	21.8	21.8	36.1	36.1	25.4	
Actuated g/C Ratio	0.30	0.30	0.49	0.49	0.35	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	
Lane Grp Cap (vph)	553	470	415	915	577	
v/s Ratio Prot	0.19		0.05	c0.36	c0.29	
v/s Ratio Perm		0.02	0.16			
v/c Ratio	0.63	0.08	0.42	0.74	0.85	
Uniform Delay, d1	22.4	18.6	11.8	14.9	22.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.3	0.2	0.3	3.8	10.5	
Delay (s)	25.6	18.8	12.1	18.7	32.8	
Level of Service	C	B	B	B	C	
Approach Delay (s)	23.8			17.3	32.8	
Approach LOS	C			B	C	
Intersection Summary						
HCM Average Control Delay			23.6		HCM Level of Service	C
HCM Volume to Capacity ratio			0.78			
Actuated Cycle Length (s)			73.5		Sum of lost time (s)	12.0
Intersection Capacity Utilization			73.6%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Bankhead Hwy US78 & Rose Ave

2014 No-Build PM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	367	23	86	496	86	69	267	106	43	156	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.97			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1846		1770	1822			1789			1809	
Flt Permitted	0.34	1.00		0.29	1.00			0.91			0.85	
Satd. Flow (perm)	630	1846		543	1822			1640			1545	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	399	25	93	539	93	75	290	115	47	170	38
RTOR Reduction (vph)	0	2	0	0	5	0	0	10	0	0	6	0
Lane Group Flow (vph)	28	422	0	93	627	0	0	470	0	0	249	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		6		5	2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	32.5	32.5		43.5	43.5			31.9			31.9	
Effective Green, g (s)	32.5	32.5		43.5	43.5			31.9			31.9	
Actuated g/C Ratio	0.38	0.38		0.51	0.51			0.37			0.37	
Clearance Time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Vehicle Extension (s)	6.0	6.0		3.0	6.0			3.0			8.0	
Lane Grp Cap (vph)	239	702		361	927			612			576	
v/s Ratio Prot		0.23		0.02	c0.34							
v/s Ratio Perm	0.04			0.11				c0.29			0.16	
v/c Ratio	0.12	0.60		0.26	0.68			0.77			0.43	
Uniform Delay, d1	17.2	21.3		12.6	15.7			23.5			20.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.6	2.6		0.4	3.0			5.8			2.2	
Delay (s)	17.8	23.9		13.0	18.8			29.3			22.3	
Level of Service	B	C		B	B			C			C	
Approach Delay (s)		23.5			18.0			29.3			22.3	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM Average Control Delay			22.7			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			85.5			Sum of lost time (s)			10.1			
Intersection Capacity Utilization			83.4%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Concourse Pkwy & Bill Arp Rd Hwy 5

2014 No-Build PM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	1	571	0	101	0	1144	479	57	662	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5	6.5	6.5	6.5		6.5	6.5	6.0	6.5	
Lane Util. Factor			1.00	0.95	0.95	1.00		0.95	1.00	1.00	0.95	
Frt			0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected			1.00	0.95	0.95	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)			1583	1681	1681	1583		3539	1583	1770	3539	
Flt Permitted			1.00	0.95	0.95	1.00		1.00	1.00	0.13	1.00	
Satd. Flow (perm)			1583	1681	1681	1583		3539	1583	249	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	1	621	0	110	0	1243	521	62	720	0
RTOR Reduction (vph)	0	0	1	0	0	69	0	0	227	0	0	0
Lane Group Flow (vph)	0	0	0	310	311	41	0	1243	294	62	720	0
Turn Type	Split		Perm	Split		Perm	pm+pt		Perm	pm+pt		
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases			4			3	6		6		2	
Actuated Green, G (s)			1.4	29.9	29.9	29.9		78.9	78.9	89.2	89.2	
Effective Green, g (s)			1.4	29.9	29.9	29.9		78.9	78.9	89.2	89.2	
Actuated g/C Ratio			0.01	0.21	0.21	0.21		0.56	0.56	0.64	0.64	
Clearance Time (s)			6.5	6.5	6.5	6.5		6.5	6.5	6.0	6.5	
Vehicle Extension (s)			1.0	1.0	1.0	1.0		5.0	5.0	1.0	5.0	
Lane Grp Cap (vph)			16	359	359	338		1994	892	205	2255	
v/s Ratio Prot				0.18	c0.18			c0.35		0.01	c0.20	
v/s Ratio Perm			c0.00			0.03			0.19	0.18		
v/c Ratio			0.00	0.86	0.87	0.12		0.62	0.33	0.30	0.32	
Uniform Delay, d1			68.6	53.1	53.1	44.4		20.6	16.4	14.5	11.6	
Progression Factor			1.00	1.00	1.00	1.00		0.73	1.08	0.56	0.59	
Incremental Delay, d2			0.0	18.3	18.6	0.1		1.0	0.6	0.3	0.3	
Delay (s)			68.6	71.4	71.7	44.5		16.0	18.3	8.4	7.1	
Level of Service			E	E	E	D		B	B	A	A	
Approach Delay (s)		68.6			67.5			16.7			7.2	
Approach LOS		E			E			B			A	
Intersection Summary												
HCM Average Control Delay			25.8			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			26.0			
Intersection Capacity Utilization			67.4%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Bill Arp Rd Hwy 5 & I-20 WB Ramp

2014 No-Build PM

8/20/2009

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	 				 			 			
Volume (vph)	979	0	660	284	922	0	0	1043	183	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	6.5	6.0			6.0	6.0		
Lane Util. Factor	0.97		1.00	1.00	0.95			0.95	1.00		
Frt	1.00		0.85	1.00	1.00			1.00	0.85		
Flt Protected	0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)	3433		1583	1770	3539			3539	1583		
Flt Permitted	0.95		1.00	0.07	1.00			1.00	1.00		
Satd. Flow (perm)	3433		1583	134	3539			3539	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1064	0	717	309	1002	0	0	1134	199	0	0
RTOR Reduction (vph)	0	0	55	0	0	0	0	0	129	0	0
Lane Group Flow (vph)	1064	0	662	309	1002	0	0	1134	70	0	0
Turn Type	Prot		custom	pm+pt					Perm		
Protected Phases	8			1	6			2			
Permitted Phases			8	6					2		
Actuated Green, G (s)	53.7		53.7	74.8	74.8			49.1	49.1		
Effective Green, g (s)	53.7		53.7	74.8	74.8			49.1	49.1		
Actuated g/C Ratio	0.38		0.38	0.53	0.53			0.35	0.35		
Clearance Time (s)	5.5		5.5	6.5	6.0			6.0	6.0		
Vehicle Extension (s)	3.0		3.0	4.0	5.0			5.0	5.0		
Lane Grp Cap (vph)	1317		607	296	1891			1241	555		
v/s Ratio Prot	0.31			c0.14	0.28			0.32			
v/s Ratio Perm			c0.42	c0.41					0.04		
v/c Ratio	0.81		1.09	1.04	0.53			0.91	0.13		
Uniform Delay, d1	38.5		43.1	46.1	21.2			43.4	30.9		
Progression Factor	1.00		1.00	1.31	1.24			0.87	1.91		
Incremental Delay, d2	3.7		63.4	60.6	0.9			10.8	0.4		
Delay (s)	42.3		106.5	120.8	27.2			48.7	59.4		
Level of Service	D		F	F	C			D	E		
Approach Delay (s)		68.1			49.2			50.3		0.0	
Approach LOS		E			D			D		A	
Intersection Summary											
HCM Average Control Delay			57.2		HCM Level of Service				E		
HCM Volume to Capacity ratio			1.04								
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				12.0		
Intersection Capacity Utilization			75.9%		ICU Level of Service				D		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

7: I-20 EB Off Ramp & Bill Arp Rd Hwy 5

2014 No-Build PM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	132	0	208	0	0	0	0	1059	482	259	1753	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Lane Util. Factor	1.00		1.00					0.95	1.00	1.00	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770		1583					3539	1583	1770	3539	
Flt Permitted	0.95		1.00					1.00	1.00	0.17	1.00	
Satd. Flow (perm)	1770		1583					3539	1583	314	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	143	0	226	0	0	0	0	1151	524	282	1905	0
RTOR Reduction (vph)	0	0	23	0	0	0	0	0	211	0	0	0
Lane Group Flow (vph)	143	0	203	0	0	0	0	1151	313	282	1905	0
Turn Type	Prot		custom						Perm		pm+pt	
Protected Phases	4							6		5	2	
Permitted Phases			4						6		2	
Actuated Green, G (s)	22.8		22.8					83.5	83.5	105.7	105.7	
Effective Green, g (s)	22.8		22.8					83.5	83.5	105.7	105.7	
Actuated g/C Ratio	0.16		0.16					0.60	0.60	0.76	0.76	
Clearance Time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Vehicle Extension (s)	3.0		3.0					5.0	5.0	3.5	5.0	
Lane Grp Cap (vph)	288		258					2111	944	411	2672	
v/s Ratio Prot	0.08							0.33		0.08	c0.54	
v/s Ratio Perm			c0.13						0.20	0.44		
v/c Ratio	0.50		0.79					0.55	0.33	0.69	0.71	
Uniform Delay, d1	53.4		56.3					16.9	14.2	12.3	9.1	
Progression Factor	1.00		1.00					0.52	0.64	2.35	0.75	
Incremental Delay, d2	1.3		14.7					0.1	0.1	2.4	0.8	
Delay (s)	54.7		71.0					8.9	9.1	31.4	7.6	
Level of Service	D		E					A	A	C	A	
Approach Delay (s)		64.7			0.0			9.0			10.6	
Approach LOS		E			A			A			B	
Intersection Summary												
HCM Average Control Delay			14.7									
HCM Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			140.0									
Intersection Capacity Utilization			75.9%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Douglas Blvd & Bill Arp Rd Hwy 5

2014 No-Build PM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	388	243	81	305	174	504	111	653	305	386	1244	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3406		1770	1863	1583	1770	3370		1770	3437	
Flt Permitted	0.38	1.00		0.30	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	709	3406		550	1863	1583	1770	3370		1770	3437	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	422	264	88	332	189	548	121	710	332	420	1352	321
RTOR Reduction (vph)	0	23	0	0	0	321	0	39	0	0	15	0
Lane Group Flow (vph)	422	329	0	332	189	227	121	1003	0	420	1658	0
Turn Type	pm+pt			pm+pt		Perm	Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8		8						
Actuated Green, G (s)	42.2	20.2		43.8	21.0	21.0	10.0	43.0		34.0	67.0	
Effective Green, g (s)	42.2	20.2		43.8	21.0	21.0	10.0	43.0		34.0	67.0	
Actuated g/C Ratio	0.30	0.14		0.31	0.15	0.15	0.07	0.31		0.24	0.48	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	380	491		371	279	237	126	1035		430	1645	
v/s Ratio Prot	c0.17	0.10		0.15	0.10		0.07	0.30		c0.24	c0.48	
v/s Ratio Perm	c0.16			0.13		0.14						
v/c Ratio	1.11	0.67		0.89	0.68	0.96	0.96	0.97		0.98	1.01	
Uniform Delay, d1	45.5	56.7		41.2	56.3	59.0	64.8	47.8		52.6	36.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.99	0.87	
Incremental Delay, d2	79.5	4.6		23.4	8.3	46.8	67.9	21.4		30.2	20.5	
Delay (s)	125.1	61.3		64.6	64.6	105.8	132.7	69.2		82.4	52.3	
Level of Service	F	E		E	E	F	F	E		F	D	
Approach Delay (s)		96.1			85.7			75.8			58.3	
Approach LOS		F			F			E			E	
Intersection Summary												
HCM Average Control Delay			73.8			HCM Level of Service				E		
HCM Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			102.8%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2014 No-Build PM

9: Stewart Pkwy & Bill Arp Rd Hwy 5

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	204	238	188	50	165	143	156	770	22	299	1175	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.60	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1116	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	222	259	204	54	179	155	170	837	24	325	1277	162
RTOR Reduction (vph)	0	0	143	0	0	137	0	0	15	0	0	86
Lane Group Flow (vph)	222	259	61	54	179	18	170	837	9	325	1277	76
Turn Type	Prot		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases			4	8		8			6			2
Actuated Green, G (s)	20.1	42.2	42.2	16.1	16.1	16.1	16.4	50.1	50.1	28.7	62.9	62.9
Effective Green, g (s)	20.1	42.2	42.2	16.1	16.1	16.1	16.4	50.1	50.1	28.7	62.9	62.9
Actuated g/C Ratio	0.14	0.30	0.30	0.12	0.12	0.12	0.12	0.36	0.36	0.20	0.45	0.45
Clearance Time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	254	562	477	128	214	182	207	1266	566	363	1590	711
v/s Ratio Prot	c0.13	0.14			c0.10		0.10	0.24		c0.18	c0.36	
v/s Ratio Perm			0.04	0.05		0.01			0.01			0.05
v/c Ratio	0.87	0.46	0.13	0.42	0.84	0.10	0.82	0.66	0.02	0.90	0.80	0.11
Uniform Delay, d1	58.7	39.7	35.5	57.6	60.7	55.5	60.4	37.8	29.0	54.2	33.2	22.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	25.9	0.6	0.1	2.2	23.7	0.2	22.3	2.7	0.0	23.4	4.4	0.3
Delay (s)	84.6	40.3	35.7	59.9	84.4	55.7	82.6	40.5	29.1	77.5	37.6	22.6
Level of Service	F	D	D	E	F	E	F	D	C	E	D	C
Approach Delay (s)		53.3			69.5			47.2			43.6	
Approach LOS		D			E			D			D	
Intersection Summary												
HCM Average Control Delay			48.9				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			81.5%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

11: John West Rd & Bright Star Rd

2014 No-Build PM

8/20/2009



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	18	161	239	271	494	28
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	175	260	295	537	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				1042		
pX, platoon unblocked						
vC, conflicting volume	1366	552	567			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1366	552	567			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	84	67	74			
cM capacity (veh/h)	120	533	1005			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	195	554	567			
Volume Left	20	260	0			
Volume Right	175	0	30			
cSH	396	1005	1700			
Volume to Capacity	0.49	0.26	0.33			
Queue Length 95th (ft)	66	26	0			
Control Delay (s)	22.5	6.2	0.0			
Lane LOS	C	A				
Approach Delay (s)	22.5	6.2	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			6.0			
Intersection Capacity Utilization			76.1%	ICU Level of Service		D
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

12: Douglas Blvd & Bright Star Rd

2014 No-Build PM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	2	2	293	4	294	3	206	256	340	319	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frt		0.96			1.00	0.85		1.00	0.85		1.00	
Flt Protected		0.98			0.95	1.00		1.00	1.00		0.97	
Satd. Flow (prot)		1753			1775	1583		1862	1583		1815	
Flt Permitted		0.98			0.95	1.00		0.99	1.00		0.71	
Satd. Flow (perm)		1753			1775	1583		1852	1583		1325	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	2	2	318	4	320	3	224	278	370	347	2
RTOR Reduction (vph)	0	2	0	0	0	252	0	0	109	0	0	0
Lane Group Flow (vph)	0	5	0	0	322	68	0	227	169	0	719	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	3	3		4	4			6			2	
Permitted Phases						4	6		6	2		
Actuated Green, G (s)		1.3			23.4	23.4		66.7	66.7		65.3	
Effective Green, g (s)		1.3			23.4	23.4		66.7	66.7		65.3	
Actuated g/C Ratio		0.01			0.21	0.21		0.61	0.61		0.60	
Clearance Time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Vehicle Extension (s)		3.0			3.0	3.0		5.0	5.0		5.0	
Lane Grp Cap (vph)		21			379	338		1127	963		789	
v/s Ratio Prot		c0.00			c0.18							
v/s Ratio Perm						0.04		0.12	0.11		c0.54	
v/c Ratio		0.24			0.85	0.20		0.20	0.18		0.91	
Uniform Delay, d1		53.7			41.4	35.4		9.6	9.4		19.6	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		5.8			16.1	0.3		0.2	0.2		15.4	
Delay (s)		59.5			57.5	35.7		9.8	9.6		35.0	
Level of Service		E			E	D		A	A		C	
Approach Delay (s)		59.5			46.7			9.7			35.0	
Approach LOS		E			D			A			C	
Intersection Summary												
HCM Average Control Delay			32.2			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			109.6			Sum of lost time (s)			19.6			
Intersection Capacity Utilization			85.3%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 13: Cowan Mill Rd & Bright Star Rd

2014 No-Build PM
8/20/2009

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Sign Control		Stop			Stop			Stop			Stop									
Volume (vph)	121	7	58	7	3	10	68	351	6	12	453	157								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92								
Hourly flow rate (vph)	132	8	63	8	3	11	74	382	7	13	492	171								
Direction, Lane #	EB 1	WB 1	NB 1	SB 1																
Volume Total (vph)	202	22	462	676																
Volume Left (vph)	132	8	74	13																
Volume Right (vph)	63	11	7	171																
Hadj (s)	-0.02	-0.20	0.06	-0.11																
Departure Headway (s)	6.7	7.3	5.7	5.4																
Degree Utilization, x	0.38	0.04	0.74	1.01																
Capacity (veh/h)	512	435	614	666																
Control Delay (s)	13.8	10.7	23.1	60.0																
Approach Delay (s)	13.8	10.7	23.1	60.0																
Approach LOS	B	B	C	F																
Intersection Summary																				
Delay			39.8																	
HCM Level of Service			E																	
Intersection Capacity Utilization			81.6%	ICU Level of Service						D										
Analysis Period (min)			15																	

HCM Unsignalized Intersection Capacity Analysis

14: Central Church Rd & Bright Star Rd

2014 No-Build PM

8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	14	169	274	42	174	378
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	184	298	46	189	411
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1110	321			343	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1110	321			343	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	74			84	
cM capacity (veh/h)	196	720			1216	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	199	343	600			
Volume Left	15	0	189			
Volume Right	184	46	0			
cSH	598	1700	1216			
Volume to Capacity	0.33	0.20	0.16			
Queue Length 95th (ft)	36	0	14			
Control Delay (s)	14.0	0.0	3.9			
Lane LOS	B		A			
Approach Delay (s)	14.0	0.0	3.9			
Approach LOS	B					
Intersection Summary						
Average Delay		4.5				
Intersection Capacity Utilization		67.7%		ICU Level of Service		C
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

15: Douglas Blvd & Arbor Place Mall Drwy

2014 No-Build PM

8/20/2009

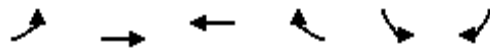
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Volume (vph)	561	271	63	710	440	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.28	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	527	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	610	295	68	772	478	36
RTOR Reduction (vph)	0	194	0	0	0	27
Lane Group Flow (vph)	610	101	68	772	478	9
Turn Type		Perm	pm+pt			Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	17.9	17.9	28.8	28.8	13.7	13.7
Effective Green, g (s)	17.9	17.9	28.8	28.8	13.7	13.7
Actuated g/C Ratio	0.34	0.34	0.55	0.55	0.26	0.26
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1207	540	429	1941	896	413
v/s Ratio Prot	c0.17		0.02	c0.22	c0.14	
v/s Ratio Perm		0.06	0.07			0.01
v/c Ratio	0.51	0.19	0.16	0.40	0.53	0.02
Uniform Delay, d1	13.8	12.2	6.2	6.8	16.7	14.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.2	0.2	0.1	0.6	0.0
Delay (s)	14.1	12.3	6.3	7.0	17.3	14.4
Level of Service	B	B	A	A	B	B
Approach Delay (s)	13.5			6.9	17.1	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay			11.9	HCM Level of Service		B
HCM Volume to Capacity ratio			0.53			
Actuated Cycle Length (s)			52.5	Sum of lost time (s)		15.0
Intersection Capacity Utilization			44.7%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

16: Cedar Mountain Rd & Dorris Rd

2014 No-Build PM

8/20/2009



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	42	55	112	605	273	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4		5.6	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	0.89		0.98	
Flt Protected		0.98	1.00		0.96	
Satd. Flow (prot)		1823	1651		1747	
Flt Permitted		0.62	1.00		0.96	
Satd. Flow (perm)		1161	1651		1747	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	60	122	658	297	62
RTOR Reduction (vph)	0	0	274	0	12	0
Lane Group Flow (vph)	0	106	506	0	347	0
Turn Type	Perm					
Protected Phases		2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		37.1	37.1		16.9	
Effective Green, g (s)		37.1	37.1		16.9	
Actuated g/C Ratio		0.57	0.57		0.26	
Clearance Time (s)		5.4	5.4		5.6	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		663	942		454	
v/s Ratio Prot			c0.31		c0.20	
v/s Ratio Perm		0.09				
v/c Ratio		0.16	0.54		0.76	
Uniform Delay, d1		6.6	8.6		22.2	
Progression Factor		1.00	1.22		1.00	
Incremental Delay, d2		0.5	1.6		7.5	
Delay (s)		7.1	12.1		29.7	
Level of Service		A	B		C	
Approach Delay (s)		7.1	12.1		29.7	
Approach LOS		A	B		C	
Intersection Summary						
HCM Average Control Delay			16.8		HCM Level of Service	B
HCM Volume to Capacity ratio			0.61			
Actuated Cycle Length (s)			65.0		Sum of lost time (s)	11.0
Intersection Capacity Utilization			71.0%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

17: Cedar Mountain Rd & S Flat Rock Rd

2014 No-Build PM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	119	193	23	254	18	475	7	26	21	7	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			5.5			5.1			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.92			0.99			0.99			0.99	
Flt Protected		1.00			1.00			0.96			0.97	
Satd. Flow (prot)		1708			1840			1767			1785	
Flt Permitted		1.00			0.96			0.72			0.73	
Satd. Flow (perm)		1701			1764			1324			1342	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	129	210	25	276	20	516	8	28	23	8	2
RTOR Reduction (vph)	0	80	0	0	3	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	263	0	0	318	0	0	549	0	0	32	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		22.9			23.2			31.2			31.3	
Effective Green, g (s)		22.9			23.2			31.2			31.3	
Actuated g/C Ratio		0.35			0.36			0.48			0.48	
Clearance Time (s)		5.8			5.5			5.1			5.0	
Vehicle Extension (s)		5.0			5.0			3.0			3.0	
Lane Grp Cap (vph)		599			630			636			646	
v/s Ratio Prot												
v/s Ratio Perm		0.15			0.18			0.41			0.02	
v/c Ratio		0.44			0.50			0.86			0.05	
Uniform Delay, d1		16.1			16.4			15.0			8.9	
Progression Factor		0.41			1.00			1.00			1.00	
Incremental Delay, d2		1.9			2.9			11.6			0.0	
Delay (s)		8.5			19.3			26.6			9.0	
Level of Service		A			B			C			A	
Approach Delay (s)		8.5			19.3			26.6			9.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM Average Control Delay			19.3			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			10.6			
Intersection Capacity Utilization			72.4%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
19: W Stewarts Mill Rd & Woodland Dr

2014 No-Build PM
8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	26	361	8	20	341	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	392	9	22	371	18
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	421	30	389			
Volume Left (vph)	0	9	371			
Volume Right (vph)	392	0	18			
Hadj (s)	-0.53	0.09	0.20			
Departure Headway (s)	4.5	5.6	5.2			
Degree Utilization, x	0.53	0.05	0.56			
Capacity (veh/h)	760	572	660			
Control Delay (s)	12.4	8.9	14.5			
Approach Delay (s)	12.4	8.9	14.5			
Approach LOS	B	A	B			
Intersection Summary						
Delay			13.2			
HCM Level of Service			B			
Intersection Capacity Utilization			50.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

20: I-20 WB Off Ramp & Chapel Hill Rd

2014 No-Build PM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	211	444	882	0	0	1205	516
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	229	483	959	0	0	1310	561
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	662											
pX, platoon unblocked	0.82	0.82		0.82	0.82	0.82				0.82		
vC, conflicting volume	2754	3234	655	2579	3234	479	1310			959		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2699	3287	655	2483	3287	0	1310			495		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	74	8			100		
cM capacity (veh/h)	1	1	409	2	1	884	524			868		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3					
Volume Total	229	483	479	479	655	655	561					
Volume Left	0	483	0	0	0	0	0					
Volume Right	229	0	0	0	0	0	561					
cSH	884	524	1700	1700	1700	1700	1700					
Volume to Capacity	0.26	0.92	0.28	0.28	0.39	0.39	0.33					
Queue Length 95th (ft)	26	278	0	0	0	0	0					
Control Delay (s)	10.5	50.3	0.0	0.0	0.0	0.0	0.0					
Lane LOS	B	F										
Approach Delay (s)	10.5	16.8			0.0							
Approach LOS	B											
Intersection Summary												
Average Delay	7.5											
Intersection Capacity Utilization	87.2%			ICU Level of Service			E					
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis
21: I-20 EB Off Ramp @ Chapel Hill Rd &

2014 No-Build PM
8/20/2009

											
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	164	0	319	0	1144	601	77	1812	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Lane Util. Factor	1.00		1.00		0.95	1.00	1.00	0.91			
Frt	1.00		0.85		1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1770		1583		3539	1583	1770	5085			
Flt Permitted	0.95		1.00		1.00	1.00	0.13	1.00			
Satd. Flow (perm)	1770		1583		3539	1583	248	5085			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	0	347	0	1243	653	84	1970	0	0	0
RTOR Reduction (vph)	0	0	8	0	0	286	0	0	0	0	0
Lane Group Flow (vph)	178	0	339	0	1243	367	84	1970	0	0	0
Turn Type	Prot	custom			Perm	pm+pt					
Protected Phases	4				6		5	2			
Permitted Phases			4			6		2			
Actuated Green, G (s)	30.9		30.9		67.4	67.4	78.6	78.6			
Effective Green, g (s)	30.9		30.9		67.4	67.4	78.6	78.6			
Actuated g/C Ratio	0.26		0.26		0.56	0.56	0.65	0.65			
Clearance Time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Vehicle Extension (s)	3.5		3.5		6.0	6.0	3.5	6.0			
Lane Grp Cap (vph)	456		408		1988	889	241	3331			
v/s Ratio Prot	0.10				c0.35		0.02	c0.39			
v/s Ratio Perm			c0.21			0.23	0.21				
v/c Ratio	0.39		0.83		0.63	0.41	0.35	0.59			
Uniform Delay, d1	36.8		42.1		17.8	15.0	12.0	11.7			
Progression Factor	1.00		1.00		1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.7		13.7		1.5	1.4	1.0	0.8			
Delay (s)	37.4		55.8		19.3	16.4	13.1	12.4			
Level of Service	D		E		B	B	B	B			
Approach Delay (s)		49.6			18.3			12.5		0.0	
Approach LOS		D			B			B		A	
Intersection Summary											
HCM Average Control Delay			19.3		HCM Level of Service			B			
HCM Volume to Capacity ratio			0.70								
Actuated Cycle Length (s)			120.0		Sum of lost time (s)			16.0			
Intersection Capacity Utilization			63.5%		ICU Level of Service			B			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

30: Bill Arp Rd Hwy 5 & Bright Star Rd

2014 No-Build PM

8/20/2009

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Volume (veh/h)	176	488	0	0	857	3	0	0	0	1	0	183		
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	191	530	0	0	932	3	0	0	0	1	0	199		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)												8		
Median type	None			None										
Median storage veh														
Upstream signal (ft)														
pX, platoon unblocked														
vC, conflicting volume	932				530				1845	1845	530	1845	1845	932
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	932				530				1845	1845	530	1845	1845	932
tC, single (s)	4.1				4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)														
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	74				100				100	100	100	98	100	38
cM capacity (veh/h)	735				1037				18	55	549	46	55	323
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1						
Volume Total	191	530	0	0	932	3	0	200						
Volume Left	191	0	0	0	0	0	0	1						
Volume Right	0	0	0	0	0	3	0	199						
cSH	735	1700	1700	1700	1700	1700	1700	325						
Volume to Capacity	0.26	0.31	0.00	0.00	0.55	0.00	0.00	0.62						
Queue Length 95th (ft)	26	0	0	0	0	0	0	96						
Control Delay (s)	11.6	0.0	0.0	0.0	0.0	0.0	0.0	32.7						
Lane LOS	B							A	D					
Approach Delay (s)	3.1				0.0				0.0	32.7				
Approach LOS							A	D						
Intersection Summary														
Average Delay				4.7										
Intersection Capacity Utilization				68.2%	ICU Level of Service				C					
Analysis Period (min)				15										

HCM Signalized Intersection Capacity Analysis

33: Bill Arp Rd Hwy 5 & Rose Ave

2014 No-Build PM

8/20/2009

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	79	374	0	0	755	518	0	0	0	373	0	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0				5.0		5.0
Lane Util. Factor	1.00	0.95			1.00	1.00				1.00		1.00
Flt	1.00	1.00			1.00	0.85				1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (prot)	1770	3539			1863	1583				1770		1583
Flt Permitted	0.18	1.00			1.00	1.00				0.95		1.00
Satd. Flow (perm)	344	3539			1863	1583				1770		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	407	0	0	821	563	0	0	0	405	0	95
RTOR Reduction (vph)	0	0	0	0	0	169	0	0	0	0	0	73
Lane Group Flow (vph)	86	407	0	0	821	394	0	0	0	405	0	22
Turn Type	pm+pt			pm+pt		Perm	pm+pt			pm+pt		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	96.9	96.9			83.3	83.3				33.1		33.1
Effective Green, g (s)	96.9	96.9			83.3	83.3				33.1		33.1
Actuated g/C Ratio	0.69	0.69			0.60	0.60				0.24		0.24
Clearance Time (s)	5.0	5.0			5.0	5.0				5.0		5.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0		3.0
Lane Grp Cap (vph)	326	2449			1108	942				418		374
v/s Ratio Prot	c0.02	0.11			c0.44					c0.23		
v/s Ratio Perm	0.17					0.25						0.01
v/c Ratio	0.26	0.17			0.74	0.42				0.97		0.06
Uniform Delay, d1	30.1	7.5			20.5	15.3				52.9		41.4
Progression Factor	1.00	1.00			0.40	0.28				1.00		1.00
Incremental Delay, d2	0.4	0.1			3.8	1.2				35.5		0.1
Delay (s)	30.5	7.6			12.1	5.4				88.4		41.5
Level of Service	C	A			B	A				F		D
Approach Delay (s)		11.6			9.4			0.0			79.5	
Approach LOS		B			A			A			E	
Intersection Summary												
HCM Average Control Delay		24.6			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.74										
Actuated Cycle Length (s)		140.0			Sum of lost time (s)			10.0				
Intersection Capacity Utilization		77.3%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

112: West Strickland St & Bankhead Hwy RR Crossing

2014 No-Build PM

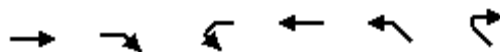
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	18	287	28	20	1	492	1	44	1	1	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	312	30	22	1	535	1	48	1	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1110	1122	1	1420	1098	25	1			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1110	1122	1	1420	1098	25	1			49		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	86	71	44	85	100	67			100		
cM capacity (veh/h)	123	138	1083	54	143	1051	1622			1558		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	332	53	584	2								
Volume Left	0	30	535	1								
Volume Right	312	1	48	0								
cSH	771	75	1622	1558								
Volume to Capacity	0.43	0.71	0.33	0.00								
Queue Length 95th (ft)	54	83	37	0								
Control Delay (s)	13.1	129.1	7.8	3.7								
Lane LOS	B	F	A	A								
Approach Delay (s)	13.1	129.1	7.8	3.7								
Approach LOS	B	F										
Intersection Summary												
Average Delay			16.3									
Intersection Capacity Utilization			68.7%		ICU Level of Service				C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

1: Bankhead Hwy US78 & John West Rd

2014 No-Build SAT (PM)
8/20/2009



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑	↗		↗	↘	
Volume (veh/h)	282	96	5	353	116	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	307	104	5	384	126	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			411		701	307
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			411		701	307
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		69	99
cM capacity (veh/h)			1148		403	733
Direction, Lane #	EB 1	EB 2	WB 1	NW 1		
Volume Total	307	104	389	133		
Volume Left	0	0	5	126		
Volume Right	0	104	0	7		
cSH	1700	1700	1148	412		
Volume to Capacity	0.18	0.06	0.00	0.32		
Queue Length 95th (ft)	0	0	0	34		
Control Delay (s)	0.0	0.0	0.2	17.8		
Lane LOS			A	C		
Approach Delay (s)	0.0		0.2	17.8		
Approach LOS				C		
Intersection Summary						
Average Delay			2.6			
Intersection Capacity Utilization			36.0%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
2: Bankhead Hwy US 78 & Bill Arp Rd Hwy 5

2014 No-Build SAT (PM)

8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	315	66	177	407	87	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.90	
Flt Protected	1.00	1.00	0.95	1.00	0.99	
Satd. Flow (prot)	1863	1583	1770	1863	1659	
Flt Permitted	1.00	1.00	0.35	1.00	0.99	
Satd. Flow (perm)	1863	1583	653	1863	1659	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	342	72	192	442	95	238
RTOR Reduction (vph)	0	48	0	0	115	0
Lane Group Flow (vph)	342	24	192	442	218	0
Turn Type		Perm	pm+pt			
Protected Phases	6		5	2	4	
Permitted Phases		6	2			
Actuated Green, G (s)	19.2	19.2	34.5	34.5	12.3	
Effective Green, g (s)	19.2	19.2	34.5	34.5	12.3	
Actuated g/C Ratio	0.33	0.33	0.59	0.59	0.21	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	
Lane Grp Cap (vph)	608	517	560	1093	347	
v/s Ratio Prot	c0.18		0.05	c0.24	c0.13	
v/s Ratio Perm		0.01	0.15			
v/c Ratio	0.56	0.05	0.34	0.40	0.63	
Uniform Delay, d1	16.3	13.5	6.5	6.6	21.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	0.1	0.1	0.5	2.6	
Delay (s)	18.3	13.6	6.7	7.1	23.7	
Level of Service	B	B	A	A	C	
Approach Delay (s)	17.5			7.0	23.7	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay			14.2		HCM Level of Service	B
HCM Volume to Capacity ratio			0.58			
Actuated Cycle Length (s)			58.8		Sum of lost time (s)	18.0
Intersection Capacity Utilization			59.7%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Bankhead Hwy US78 & Rose Ave

2014 No-Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	244	29	117	295	52	39	197	174	74	212	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.98			0.94			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1770	1833		1770	1821			1748			1815	
Flt Permitted	0.54	1.00		0.35	1.00			0.94			0.78	
Satd. Flow (perm)	1001	1833		646	1821			1651			1436	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	265	32	127	321	57	42	214	189	80	230	37
RTOR Reduction (vph)	0	4	0	0	5	0	0	24	0	0	4	0
Lane Group Flow (vph)	18	293	0	127	373	0	0	421	0	0	343	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		6		5	2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	22.3	22.3		37.5	37.5			30.3			30.3	
Effective Green, g (s)	22.3	22.3		37.5	37.5			30.3			30.3	
Actuated g/C Ratio	0.29	0.29		0.48	0.48			0.39			0.39	
Clearance Time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Vehicle Extension (s)	6.0	6.0		3.0	6.0			3.0			8.0	
Lane Grp Cap (vph)	287	525		457	877			642			559	
v/s Ratio Prot		c0.16		0.04	c0.20							
v/s Ratio Perm	0.02			0.10				c0.26			0.24	
v/c Ratio	0.06	0.56		0.28	0.43			0.66			0.61	
Uniform Delay, d1	20.2	23.6		12.2	13.2			19.5			19.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.3	2.8		0.3	0.9			2.4			4.7	
Delay (s)	20.5	26.4		12.5	14.1			21.9			23.8	
Level of Service	C	C		B	B			C			C	
Approach Delay (s)		26.1			13.7			21.9			23.8	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM Average Control Delay			20.6			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			77.9			Sum of lost time (s)			15.2			
Intersection Capacity Utilization			72.7%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Concourse Pkwy & Bill Arp Rd Hwy 5

2014 No-Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	3	702	1	105	4	727	696	61	699	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5	6.5	6.5	6.5	6.0	6.5	6.5	6.0	6.5	
Lane Util. Factor			1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt			0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected			1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)			1583	1681	1686	1583	1770	3539	1583	1770	3539	
Flt Permitted			1.00	0.95	0.95	1.00	0.31	1.00	1.00	0.26	1.00	
Satd. Flow (perm)			1583	1681	1686	1583	585	3539	1583	482	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3	763	1	114	4	790	757	66	760	1
RTOR Reduction (vph)	0	0	3	0	0	36	0	0	375	0	0	0
Lane Group Flow (vph)	0	0	0	381	383	78	4	790	382	66	761	0
Turn Type	Split		Perm	Split		Perm	pm+pt		Perm	pm+pt		
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases			4			3	6		6	2		
Actuated Green, G (s)			1.4	56.0	56.0	56.0	91.8	90.8	90.8	102.4	96.1	
Effective Green, g (s)			1.4	56.0	56.0	56.0	91.8	90.8	90.8	102.4	96.1	
Actuated g/C Ratio			0.01	0.31	0.31	0.31	0.51	0.50	0.50	0.57	0.53	
Clearance Time (s)			6.5	6.5	6.5	6.5	6.0	6.5	6.5	6.0	6.5	
Vehicle Extension (s)			1.0	1.0	1.0	1.0	1.0	5.0	5.0	1.0	5.0	
Lane Grp Cap (vph)			12	523	525	492	305	1785	799	319	1889	
v/s Ratio Prot				0.23	c0.23		0.00	0.22		c0.01	c0.22	
v/s Ratio Perm			c0.00			0.05	0.01		c0.24	0.11		
v/c Ratio			0.00	0.73	0.73	0.16	0.01	0.44	0.48	0.21	0.40	
Uniform Delay, d1			88.6	55.2	55.3	44.9	22.1	28.5	29.1	19.4	24.9	
Progression Factor			1.00	1.00	1.00	1.00	0.82	0.98	3.89	0.80	1.03	
Incremental Delay, d2			0.0	4.3	4.3	0.1	0.0	0.6	1.6	0.1	0.6	
Delay (s)			88.6	59.5	59.5	45.0	18.0	28.5	114.9	15.7	26.1	
Level of Service			F	E	E	D	B	C	F	B	C	
Approach Delay (s)		88.6			57.6			70.6			25.3	
Approach LOS		F			E			E			C	
Intersection Summary												
HCM Average Control Delay			55.6			HCM Level of Service				E		
HCM Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			32.0			
Intersection Capacity Utilization			60.9%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Bill Arp Rd Hwy 5 & I-20 WB Ramp

2014 No-Build SAT (PM)

8/20/2009

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	 				 			 			
Volume (vph)	541	0	508	306	985	0	0	1157	221	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	6.5	6.0			6.0	6.0		
Lane Util. Factor	0.97		1.00	1.00	0.95			0.95	1.00		
Frt	1.00		0.85	1.00	1.00			1.00	0.85		
Flt Protected	0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)	3433		1583	1770	3539			3539	1583		
Flt Permitted	0.95		1.00	0.06	1.00			1.00	1.00		
Satd. Flow (perm)	3433		1583	118	3539			3539	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	588	0	552	333	1071	0	0	1258	240	0	0
RTOR Reduction (vph)	0	0	83	0	0	0	0	0	109	0	0
Lane Group Flow (vph)	588	0	469	333	1071	0	0	1258	131	0	0
Turn Type	Prot		custom	pm+pt					Perm		
Protected Phases	8			1	6			2			
Permitted Phases			8	6					2		
Actuated Green, G (s)	54.5		54.5	114.0	114.0			77.6	77.6		
Effective Green, g (s)	54.5		54.5	114.0	114.0			77.6	77.6		
Actuated g/C Ratio	0.30		0.30	0.63	0.63			0.43	0.43		
Clearance Time (s)	5.5		5.5	6.5	6.0			6.0	6.0		
Vehicle Extension (s)	3.0		3.0	4.0	5.0			5.0	5.0		
Lane Grp Cap (vph)	1039		479	349	2241			1526	682		
v/s Ratio Prot	0.17			c0.16	0.30			0.36			
v/s Ratio Perm			c0.30	c0.45					0.08		
v/c Ratio	0.57		0.98	0.95	0.48			0.82	0.19		
Uniform Delay, d1	52.8		62.2	59.0	17.4			45.2	31.8		
Progression Factor	1.00		1.00	1.34	1.66			0.60	0.84		
Incremental Delay, d2	0.7		35.3	24.6	0.4			4.5	0.5		
Delay (s)	53.5		97.5	103.8	29.2			31.7	27.3		
Level of Service	D		F	F	C			C	C		
Approach Delay (s)		74.8			46.9			31.0		0.0	
Approach LOS		E			D			C		A	
Intersection Summary											
HCM Average Control Delay			48.9		HCM Level of Service				D		
HCM Volume to Capacity ratio			0.94								
Actuated Cycle Length (s)			180.0		Sum of lost time (s)				12.0		
Intersection Capacity Utilization			74.1%		ICU Level of Service				D		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
7: I-20 EB Off Ramp & Bill Arp Rd Hwy 5

2014 No-Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (vph)	96	0	397	0	0	0	0	1266	515	344	1367	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Lane Util. Factor	1.00		1.00					0.95	1.00	1.00	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770		1583					3539	1583	1770	3539	
Flt Permitted	0.95		1.00					1.00	1.00	0.05	1.00	
Satd. Flow (perm)	1770		1583					3539	1583	87	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	0	432	0	0	0	0	1376	560	374	1486	0
RTOR Reduction (vph)	0	0	41	0	0	0	0	0	242	0	0	0
Lane Group Flow (vph)	104	0	391	0	0	0	0	1376	318	374	1486	0
Turn Type	Prot		custom						Perm		pm+pt	
Protected Phases	4							6		5	2	
Permitted Phases			4						6		2	
Actuated Green, G (s)	46.5		46.5					80.5	80.5	122.0	122.0	
Effective Green, g (s)	46.5		46.5					80.5	80.5	122.0	122.0	
Actuated g/C Ratio	0.26		0.26					0.45	0.45	0.68	0.68	
Clearance Time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Vehicle Extension (s)	3.0		3.0					5.0	5.0	3.5	5.0	
Lane Grp Cap (vph)	457		409					1583	708	396	2399	
v/s Ratio Prot	0.06							0.39		c0.19	0.42	
v/s Ratio Perm			c0.25						0.20	c0.45		
v/c Ratio	0.23		0.96					0.87	0.45	0.94	0.62	
Uniform Delay, d1	52.6		65.8					45.0	34.4	61.6	16.1	
Progression Factor	1.00		1.00					0.46	0.30	1.30	0.39	
Incremental Delay, d2	0.3		33.1					2.8	0.8	23.9	0.8	
Delay (s)	52.9		98.8					23.3	11.1	103.9	7.0	
Level of Service	D		F					C	B	F	A	
Approach Delay (s)		89.9			0.0			19.8			26.5	
Approach LOS		F			A			B			C	
Intersection Summary												
HCM Average Control Delay			31.4									
HCM Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			180.0									
Intersection Capacity Utilization			74.1%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Douglas Blvd & Bill Arp Rd Hwy 5

2014 No-Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	311	403	86	290	281	559	90	750	151	550	893	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3446		1770	1863	1583	1770	3450		1770	3427	
Flt Permitted	0.15	1.00		0.14	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	276	3446		266	1863	1583	1770	3450		1770	3427	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	338	438	93	315	305	608	98	815	164	598	971	260
RTOR Reduction (vph)	0	10	0	0	0	432	0	9	0	0	13	0
Lane Group Flow (vph)	338	521	0	315	305	176	98	970	0	598	1218	0
Turn Type	pm+pt			pm+pt		Perm	Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8		8						
Actuated Green, G (s)	53.0	27.0		55.0	28.0	28.0	15.3	49.0		57.0	90.7	
Effective Green, g (s)	53.0	27.0		55.0	28.0	28.0	15.3	49.0		57.0	90.7	
Actuated g/C Ratio	0.29	0.15		0.31	0.16	0.16	0.08	0.27		0.32	0.50	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	297	517		307	290	246	150	939		561	1727	
v/s Ratio Prot	c0.16	0.15		0.15	0.16		0.06	c0.28		c0.34	0.36	
v/s Ratio Perm	c0.17			0.16		0.11						
v/c Ratio	1.14	1.01		1.03	1.05	0.72	0.65	1.03		1.07	0.71	
Uniform Delay, d1	57.2	76.5		57.6	76.0	72.2	79.8	65.5		61.5	34.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.02	1.02	
Incremental Delay, d2	94.8	41.4		58.2	67.1	11.7	10.8	38.0		51.2	1.8	
Delay (s)	152.1	117.9		115.8	143.1	84.0	90.6	103.5		113.9	37.0	
Level of Service	F	F		F	F	F	F	F		F	D	
Approach Delay (s)		131.2			106.8			102.4			62.1	
Approach LOS		F			F			F			E	
Intersection Summary												
HCM Average Control Delay			93.8			HCM Level of Service			F			
HCM Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			104.7%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Stewart Pkwy & Bill Arp Rd Hwy 5

2014 No-Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	162	129	174	32	140	172	164	791	28	160	809	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.67	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1244	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	140	189	35	152	187	178	860	30	174	879	160
RTOR Reduction (vph)	0	0	138	0	0	166	0	0	12	0	0	79
Lane Group Flow (vph)	176	140	51	35	152	21	178	860	18	174	879	81
Turn Type	Prot		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases			4	8		8			6			2
Actuated Green, G (s)	22.3	48.6	48.6	20.3	20.3	20.3	23.4	89.5	89.5	22.9	89.5	89.5
Effective Green, g (s)	22.3	48.6	48.6	20.3	20.3	20.3	23.4	89.5	89.5	22.9	89.5	89.5
Actuated g/C Ratio	0.12	0.27	0.27	0.11	0.11	0.11	0.13	0.50	0.50	0.13	0.50	0.50
Clearance Time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	219	503	427	140	210	179	230	1760	787	225	1760	787
v/s Ratio Prot	c0.10	0.08			c0.08		c0.10	0.24		0.10	c0.25	
v/s Ratio Perm			0.03	0.03		0.01			0.01			0.05
v/c Ratio	0.80	0.28	0.12	0.25	0.72	0.12	0.77	0.49	0.02	0.77	0.50	0.10
Uniform Delay, d1	76.7	51.9	49.6	72.9	77.1	71.8	75.7	30.1	23.0	76.0	30.3	24.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.9	0.3	0.1	0.9	11.7	0.3	14.9	1.0	0.1	15.2	1.0	0.3
Delay (s)	94.6	52.2	49.7	73.8	88.8	72.1	90.6	31.0	23.1	91.2	31.3	24.2
Level of Service	F	D	D	E	F	E	F	C	C	F	C	C
Approach Delay (s)		66.0			79.0			40.7			38.9	
Approach LOS		E			E			D			D	
Intersection Summary												
HCM Average Control Delay			48.6				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			180.0				Sum of lost time (s)			24.5		
Intersection Capacity Utilization			68.2%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

11: John West Rd & Bright Star Rd

2014 No-Build SAT (PM)
8/20/2009



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	9	109	125	285	287	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	118	136	310	312	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				1042		
pX, platoon unblocked						
vC, conflicting volume	898	317	322			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	898	317	322			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	84	89			
cM capacity (veh/h)	276	724	1238			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	128	446	322			
Volume Left	10	136	0			
Volume Right	118	0	10			
cSH	644	1238	1700			
Volume to Capacity	0.20	0.11	0.19			
Queue Length 95th (ft)	18	9	0			
Control Delay (s)	12.0	3.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.0	3.3	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			3.4			
Intersection Capacity Utilization			54.8%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

12: Douglas Blvd & Bright Star Rd

2014 No-Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1	2	231	7	239	0	127	241	220	190	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frt		0.91			1.00	0.85		1.00	0.85		1.00	
Flt Protected		1.00			0.95	1.00		1.00	1.00		0.97	
Satd. Flow (prot)		1695			1777	1583		1863	1583		1814	
Flt Permitted		1.00			0.95	1.00		1.00	1.00		0.76	
Satd. Flow (perm)		1695			1777	1583		1863	1583		1414	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1	2	251	8	260	0	138	262	239	207	0
RTOR Reduction (vph)	0	2	0	0	0	194	0	0	140	0	0	0
Lane Group Flow (vph)	0	1	0	0	259	66	0	138	122	0	446	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	3	3		4	4			6			2	
Permitted Phases						4	6		6	2		
Actuated Green, G (s)		0.9			17.0	17.0		31.3	31.3		29.9	
Effective Green, g (s)		0.9			17.0	17.0		31.3	31.3		29.9	
Actuated g/C Ratio		0.01			0.25	0.25		0.46	0.46		0.44	
Clearance Time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Vehicle Extension (s)		3.0			3.0	3.0		5.0	5.0		5.0	
Lane Grp Cap (vph)		23			448	399		865	735		627	
v/s Ratio Prot		c0.00			c0.15			0.07				
v/s Ratio Perm						0.04			0.08		c0.32	
v/c Ratio		0.04			0.58	0.16		0.16	0.17		0.71	
Uniform Delay, d1		32.8			22.1	19.7		10.4	10.5		15.2	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		0.8			1.8	0.2		0.2	0.2		4.7	
Delay (s)		33.6			23.9	19.9		10.6	10.7		20.0	
Level of Service		C			C	B		B	B		B	
Approach Delay (s)		33.6			21.9			10.7			20.0	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM Average Control Delay			18.0			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			67.4			Sum of lost time (s)			19.6			
Intersection Capacity Utilization			67.4%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
13: Cowan Mill Rd & Bright Star Rd

2014 No-Build SAT (PM)
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	99	0	51	6	0	0	54	284	3	3	266	100
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	108	0	55	7	0	0	59	309	3	3	289	109
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	163	7	371	401								
Volume Left (vph)	108	7	59	3								
Volume Right (vph)	55	0	3	109								
Hadj (s)	-0.04	0.23	0.06	-0.13								
Departure Headway (s)	5.7	6.4	5.0	4.8								
Degree Utilization, x	0.26	0.01	0.51	0.53								
Capacity (veh/h)	566	454	700	728								
Control Delay (s)	10.7	9.5	13.1	13.1								
Approach Delay (s)	10.7	9.5	13.1	13.1								
Approach LOS	B	A	B	B								
Intersection Summary												
Delay				12.7								
HCM Level of Service				B								
Intersection Capacity Utilization				56.1%	ICU Level of Service	B						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis 14: Central Church Rd & Bright Star Rd

2014 No-Build SAT (PM)
8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	17	133	221	28	116	219
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	145	240	30	126	238
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	746	255			271	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	746	255			271	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	82			90	
cM capacity (veh/h)	344	783			1293	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	163	271	364			
Volume Left	18	0	126			
Volume Right	145	30	0			
cSH	684	1700	1293			
Volume to Capacity	0.24	0.16	0.10			
Queue Length 95th (ft)	23	0	8			
Control Delay (s)	11.9	0.0	3.4			
Lane LOS	B		A			
Approach Delay (s)	11.9	0.0	3.4			
Approach LOS	B					
Intersection Summary						
Average Delay		4.0				
Intersection Capacity Utilization		50.4%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

15: Douglas Blvd & Arbor Place Mall Drwy

2014 No-Build SAT (PM)

8/20/2009

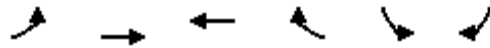
	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Volume (vph)	675	520	86	674	515	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.24	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	452	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	734	565	93	733	560	55
RTOR Reduction (vph)	0	341	0	0	0	40
Lane Group Flow (vph)	734	224	93	733	560	15
Turn Type	Perm		pm+pt		Perm	
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	26.5	26.5	38.8	38.8	18.0	18.0
Effective Green, g (s)	26.5	26.5	38.8	38.8	18.0	18.0
Actuated g/C Ratio	0.40	0.40	0.58	0.58	0.27	0.27
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1404	628	407	2056	925	427
v/s Ratio Prot	c0.21		0.03	c0.21	c0.16	
v/s Ratio Perm		0.14	0.11			0.01
v/c Ratio	0.52	0.36	0.23	0.36	0.61	0.03
Uniform Delay, d1	15.3	14.2	7.2	7.4	21.3	18.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.3	0.3	0.1	1.1	0.0
Delay (s)	15.7	14.5	7.5	7.5	22.4	18.0
Level of Service	B	B	A	A	C	B
Approach Delay (s)	15.2			7.5	22.0	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay			14.4		HCM Level of Service	B
HCM Volume to Capacity ratio			0.55			
Actuated Cycle Length (s)			66.8		Sum of lost time (s)	15.0
Intersection Capacity Utilization			50.6%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

16: Cedar Mountain Rd & Dorris Rd

2014 No-Build SAT (PM)

8/20/2009



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Volume (vph)	26	98	73	333	275	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4		6.3	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	0.89		0.98	
Flt Protected		0.99	1.00		0.96	
Satd. Flow (prot)		1844	1656		1756	
Flt Permitted		0.86	1.00		0.96	
Satd. Flow (perm)		1606	1656		1756	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	107	79	362	299	38
RTOR Reduction (vph)	0	0	227	0	7	0
Lane Group Flow (vph)	0	135	214	0	330	0
Turn Type	Perm					
Protected Phases		2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		14.4	14.4		12.4	
Effective Green, g (s)		14.4	14.4		12.4	
Actuated g/C Ratio		0.37	0.37		0.32	
Clearance Time (s)		5.4	5.4		6.3	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		601	619		566	
v/s Ratio Prot			c0.13		c0.19	
v/s Ratio Perm		0.08				
v/c Ratio		0.22	0.35		0.58	
Uniform Delay, d1		8.2	8.7		10.9	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.4	0.7		1.5	
Delay (s)		8.6	9.4		12.4	
Level of Service		A	A		B	
Approach Delay (s)		8.6	9.4		12.4	
Approach LOS		A	A		B	
Intersection Summary						
HCM Average Control Delay			10.4		HCM Level of Service	B
HCM Volume to Capacity ratio			0.46			
Actuated Cycle Length (s)			38.5		Sum of lost time (s)	11.7
Intersection Capacity Utilization			54.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

17: Cedar Mountain Rd & S Flat Rock Rd

2014 No-Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	149	233	10	149	0	261	0	21	0	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			5.5			5.1			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.92			1.00			0.99			0.86	
Flt Protected		1.00			1.00			0.96			1.00	
Satd. Flow (prot)		1709			1857			1762			1611	
Flt Permitted		1.00			0.96			0.74			1.00	
Satd. Flow (perm)		1709			1797			1366			1611	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	162	253	11	162	0	284	0	23	0	0	2
RTOR Reduction (vph)	0	92	0	0	0	0	0	5	0	0	1	0
Lane Group Flow (vph)	0	323	0	0	173	0	0	302	0	0	1	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	2			6			4			8		
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	16.9			17.2			14.9			15.0		
Effective Green, g (s)	16.9			17.2			14.9			15.0		
Actuated g/C Ratio	0.40			0.40			0.35			0.35		
Clearance Time (s)	5.8			5.5			5.1			5.0		
Vehicle Extension (s)	5.0			5.0			3.0			3.0		
Lane Grp Cap (vph)	676			724			477			566		
v/s Ratio Prot	c0.19									0.00		
v/s Ratio Perm				0.10			c0.22					
v/c Ratio	0.48			0.24			0.63			0.00		
Uniform Delay, d1	9.6			8.4			11.6			9.0		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	1.1			0.4			2.8			0.0		
Delay (s)	10.7			8.8			14.4			9.0		
Level of Service	B			A			B			A		
Approach Delay (s)	10.7			8.8			14.4			9.0		
Approach LOS	B			A			B			A		
Intersection Summary												
HCM Average Control Delay			11.6		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			42.7		Sum of lost time (s)				10.9			
Intersection Capacity Utilization			53.6%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
19: W Stewarts Mill Rd & Woodland Dr

2014 No-Build SAT (PM)
8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	7	242	8	18	261	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	263	9	20	284	18
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	271	28	302			
Volume Left (vph)	0	9	284			
Volume Right (vph)	263	0	18			
Hadj (s)	-0.55	0.10	0.19			
Departure Headway (s)	4.2	5.1	4.8			
Degree Utilization, x	0.31	0.04	0.40			
Capacity (veh/h)	811	648	725			
Control Delay (s)	9.0	8.3	10.9			
Approach Delay (s)	9.0	8.3	10.9			
Approach LOS	A	A	B			
Intersection Summary						
Delay			9.9			
HCM Level of Service			A			
Intersection Capacity Utilization			37.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
20: I-20 WB Off Ramp & Chapel Hill Rd

2014 No-Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	72	436	604	0	0	774	165
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	78	474	657	0	0	841	179
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (ft)	662											
pX, platoon unblocked	0.90	0.90		0.90	0.90	0.90				0.90		
vC, conflicting volume	2117	2446	421	2025	2446	328	841			657		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2021	2385	421	1918	2385	35	841			400		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	92	40			100		
cM capacity (veh/h)	15	12	581	19	12	928	790			1041		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3					
Volume Total	78	474	328	328	421	421	179					
Volume Left	0	474	0	0	0	0	0					
Volume Right	78	0	0	0	0	0	179					
cSH	928	790	1700	1700	1700	1700	1700					
Volume to Capacity	0.08	0.60	0.19	0.19	0.25	0.25	0.11					
Queue Length 95th (ft)	7	102	0	0	0	0	0					
Control Delay (s)	9.2	16.2	0.0	0.0	0.0	0.0	0.0					
Lane LOS	A	C										
Approach Delay (s)	9.2	6.8	0.0									
Approach LOS	A											
Intersection Summary												
Average Delay	3.8											
Intersection Capacity Utilization	76.5%				ICU Level of Service				D			
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis
21: I-20 EB Off Ramp @ Chapel Hill Rd &

2014 No-Build SAT (PM)
8/20/2009

											
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations					 			  			
Volume (vph)	94	0	455	0	946	692	37	1588	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Lane Util. Factor	1.00		1.00		0.95	1.00	1.00	0.91			
Frt	1.00		0.85		1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1770		1583		3539	1583	1770	5085			
Flt Permitted	0.95		1.00		1.00	1.00	0.16	1.00			
Satd. Flow (perm)	1770		1583		3539	1583	300	5085			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	0	495	0	1028	752	40	1726	0	0	0
RTOR Reduction (vph)	0	0	7	0	0	392	0	0	0	0	0
Lane Group Flow (vph)	102	0	488	0	1028	360	40	1726	0	0	0
Turn Type	Prot	custom				Perm	pm+pt				
Protected Phases	4				6		5	2			
Permitted Phases			4			6		2			
Actuated Green, G (s)	41.8		41.8		57.5	57.5	67.7	67.7			
Effective Green, g (s)	41.8		41.8		57.5	57.5	67.7	67.7			
Actuated g/C Ratio	0.35		0.35		0.48	0.48	0.56	0.56			
Clearance Time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Vehicle Extension (s)	3.5		3.5		6.0	6.0	3.5	6.0			
Lane Grp Cap (vph)	617		551		1696	759	233	2869			
v/s Ratio Prot	0.06				0.29		0.01	c0.34			
v/s Ratio Perm			c0.31			0.23	0.09				
v/c Ratio	0.17		0.89		0.61	0.47	0.17	0.60			
Uniform Delay, d1	27.0		36.8		22.9	21.1	14.8	17.3			
Progression Factor	1.00		1.00		1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.2		16.0		1.6	2.1	0.4	0.9			
Delay (s)	27.2		52.8		24.6	23.2	15.2	18.2			
Level of Service	C		D		C	C	B	B			
Approach Delay (s)		48.4			24.0			18.1		0.0	
Approach LOS		D			C			B		A	
Intersection Summary											
HCM Average Control Delay			25.0		HCM Level of Service			C			
HCM Volume to Capacity ratio			0.71								
Actuated Cycle Length (s)			120.0		Sum of lost time (s)			10.5			
Intersection Capacity Utilization			67.6%		ICU Level of Service			C			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

30: Bill Arp Rd Hwy 5 & Bright Star Rd

2014 No-Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	124	427	0	0	389	4	0	0	0	1	0	127
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	135	464	0	0	423	4	0	0	0	1	0	138
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	423			464			1157	1157	464	1157	1157	423
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	423			464			1157	1157	464	1157	1157	423
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	88			100			100	100	100	99	100	78
cM capacity (veh/h)	1136			1097			123	173	598	158	173	631
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	135	464	0	0	423	4	0	139				
Volume Left	135	0	0	0	0	0	0	1				
Volume Right	0	0	0	0	0	4	0	138				
cSH	1136	1700	1700	1700	1700	1700	1700	636				
Volume to Capacity	0.12	0.27	0.00	0.00	0.25	0.00	0.00	0.22				
Queue Length 95th (ft)	10	0	0	0	0	0	0	21				
Control Delay (s)	8.6	0.0	0.0	0.0	0.0	0.0	0.0	12.4				
Lane LOS	A						A	B				
Approach Delay (s)	1.9			0.0			0.0	12.4				
Approach LOS							A	B				
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			40.7%			ICU Level of Service		A				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

33: Bill Arp Rd Hwy 5 & Rose Ave

2014 No-Build SAT (PM)

8/20/2009

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	374	425	0	0	579	198	0	0	0	310	0	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0				5.0		5.0
Lane Util. Factor	1.00	0.95			1.00	1.00				1.00		1.00
Frt	1.00	1.00			1.00	0.85				1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (prot)	1770	3539			1863	1583				1770		1583
Flt Permitted	0.24	1.00			1.00	1.00				0.95		1.00
Satd. Flow (perm)	453	3539			1863	1583				1770		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	407	462	0	0	629	215	0	0	0	337	0	84
RTOR Reduction (vph)	0	0	0	0	0	60	0	0	0	0	0	67
Lane Group Flow (vph)	407	462	0	0	629	155	0	0	0	337	0	17
Turn Type	pm+pt			pm+pt		Perm	pm+pt			pm+pt		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	134.3	134.3			97.8	97.8				35.7		35.7
Effective Green, g (s)	134.3	134.3			97.8	97.8				35.7		35.7
Actuated g/C Ratio	0.75	0.75			0.54	0.54				0.20		0.20
Clearance Time (s)	5.0	5.0			5.0	5.0				5.0		5.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0		3.0
Lane Grp Cap (vph)	568	2640			1012	860				351		314
v/s Ratio Prot	c0.13	0.13			0.34					c0.19		
v/s Ratio Perm	c0.41					0.10						0.01
v/c Ratio	0.72	0.18			0.62	0.18				0.96		0.05
Uniform Delay, d1	18.6	6.7			28.3	20.8				71.4		58.5
Progression Factor	1.00	1.00			0.64	0.73				1.00		1.00
Incremental Delay, d2	4.3	0.1			2.7	0.4				37.4		0.1
Delay (s)	22.9	6.8			20.8	15.7				108.9		58.5
Level of Service	C	A			C	B				F		E
Approach Delay (s)		14.4			19.5			0.0			98.8	
Approach LOS		B			B			A			F	
Intersection Summary												
HCM Average Control Delay			33.1			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)				10.0		
Intersection Capacity Utilization			80.9%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

112: West Strickland St & Bankhead Hwy RR Crossing

2014 No-Build SAT (PM)

8/20/2009

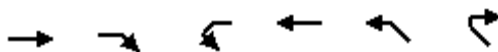
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	12	235	20	7	0	266	7	17	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	13	255	22	8	0	289	8	18	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	599	604	0	857	595	17	0			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	599	604	0	857	595	17	0			26		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	96	76	88	98	100	82			100		
cM capacity (veh/h)	351	339	1085	178	343	1062	1623			1588		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	268	29	315	0								
Volume Left	0	22	289	0								
Volume Right	255	0	18	0								
cSH	980	203	1623	1700								
Volume to Capacity	0.27	0.14	0.18	0.00								
Queue Length 95th (ft)	28	12	16	0								
Control Delay (s)	10.1	25.7	7.2	0.0								
Lane LOS	B	D	A									
Approach Delay (s)	10.1	25.7	7.2	0.0								
Approach LOS	B	D										
Intersection Summary												
Average Delay			9.3									
Intersection Capacity Utilization			40.7%	ICU Level of Service					A			
Analysis Period (min)			15									

2014 BUILD OPERATIONS

HCM Unsignalized Intersection Capacity Analysis

1: Bankhead Hwy US78 & John West Rd

2014 Build AM
8/20/2009



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑	↗		↖	↘	
Volume (veh/h)	531	149	8	336	105	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	577	162	9	365	114	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			739		960	577
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			739		960	577
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		60	98
cM capacity (veh/h)			867		282	516
Direction, Lane #	EB 1	EB 2	WB 1	NW 1		
Volume Total	577	162	374	126		
Volume Left	0	0	9	114		
Volume Right	0	162	0	12		
cSH	1700	1700	867	295		
Volume to Capacity	0.34	0.10	0.01	0.43		
Queue Length 95th (ft)	0	0	1	51		
Control Delay (s)	0.0	0.0	0.3	26.1		
Lane LOS			A	D		
Approach Delay (s)	0.0		0.3	26.1		
Approach LOS				D		
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization			41.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Bankhead Hwy US 78 & Bill Arp Rd Hwy 5

2014 Build AM

8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	527	118	290	394	73	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.91	
Flt Protected	1.00	1.00	0.95	1.00	0.98	
Satd. Flow (prot)	1863	1583	1770	1863	1669	
Flt Permitted	1.00	1.00	0.20	1.00	0.98	
Satd. Flow (perm)	1863	1583	376	1863	1669	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	573	128	315	428	79	152
RTOR Reduction (vph)	0	75	0	0	81	0
Lane Group Flow (vph)	573	53	315	428	150	0
Turn Type	Perm		pm+pt			
Protected Phases	6		5	2	4	
Permitted Phases		6	2			
Actuated Green, G (s)	29.9	29.9	49.4	49.4	10.8	
Effective Green, g (s)	29.9	29.9	49.4	49.4	10.8	
Actuated g/C Ratio	0.41	0.41	0.68	0.68	0.15	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	
Lane Grp Cap (vph)	772	656	518	1275	250	
v/s Ratio Prot	c0.31		c0.11	0.23	c0.09	
v/s Ratio Perm		0.03	0.30			
v/c Ratio	0.74	0.08	0.61	0.34	0.60	
Uniform Delay, d1	17.9	12.8	8.7	4.7	28.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.6	0.1	1.4	0.3	2.8	
Delay (s)	22.5	12.9	10.1	5.0	31.5	
Level of Service	C	B	B	A	C	
Approach Delay (s)	20.8			7.2	31.5	
Approach LOS	C			A	C	
Intersection Summary						
HCM Average Control Delay			16.2	HCM Level of Service		B
HCM Volume to Capacity ratio			0.69			
Actuated Cycle Length (s)			72.2	Sum of lost time (s)		18.0
Intersection Capacity Utilization			71.5%	ICU Level of Service		C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Bankhead Hwy US78 & Rose Ave

2014 Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	497	44	91	277	24	17	209	147	107	277	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.95			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1770	1840		1770	1841			1759			1824	
Flt Permitted	0.56	1.00		0.14	1.00			0.97			0.69	
Satd. Flow (perm)	1049	1840		266	1841			1715			1283	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	540	48	99	301	26	18	227	160	116	301	26
RTOR Reduction (vph)	0	2	0	0	3	0	0	19	0	0	2	0
Lane Group Flow (vph)	25	586	0	99	325	0	0	386	0	0	441	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases	6			5		2	8			4		
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	43.7	43.7		55.9	55.9			45.8			45.8	
Effective Green, g (s)	43.7	43.7		55.9	55.9			45.8			45.8	
Actuated g/C Ratio	0.39	0.39		0.50	0.50			0.41			0.41	
Clearance Time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Vehicle Extension (s)	6.0	6.0		3.0	6.0			3.0			8.0	
Lane Grp Cap (vph)	410	719		229	921			703			526	
v/s Ratio Prot		c0.32		0.03	c0.18							
v/s Ratio Perm	0.02			0.19				0.23			c0.34	
v/c Ratio	0.06	0.81		0.43	0.35			0.55			0.84	
Uniform Delay, d1	21.2	30.4		20.4	17.0			25.1			29.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.2	8.3		1.3	0.7			0.9			14.0	
Delay (s)	21.4	38.7		21.7	17.6			26.0			43.7	
Level of Service	C	D		C	B			C			D	
Approach Delay (s)		38.0			18.6			26.0			43.7	
Approach LOS		D			B			C			D	
Intersection Summary												
HCM Average Control Delay			32.4			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			111.8			Sum of lost time (s)			15.2			
Intersection Capacity Utilization			93.6%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Concourse Pkwy & Bill Arp Rd Hwy 5

2014 Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	10	92	193	13	42	119	1334	116	35	1021	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5	6.5	6.5	6.5	6.0	6.5	6.5	6.0	6.5	
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1817	1583	1681	1695	1583	1770	3539	1583	1770	3533	
Flt Permitted		0.98	1.00	0.95	0.96	1.00	0.17	1.00	1.00	0.10	1.00	
Satd. Flow (perm)		1817	1583	1681	1695	1583	323	3539	1583	192	3533	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	11	100	210	14	46	129	1450	126	38	1110	14
RTOR Reduction (vph)	0	0	94	0	0	42	0	0	48	0	0	0
Lane Group Flow (vph)	0	22	6	111	113	4	129	1450	78	38	1124	0
Turn Type	Split		Perm	Split		Perm	pm+pt		Perm		pm+pt	
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases			4			3	6		6		2	
Actuated Green, G (s)		7.5	7.5	12.2	12.2	12.2	91.3	80.8	80.8	72.5	68.5	
Effective Green, g (s)		7.5	7.5	12.2	12.2	12.2	91.3	80.8	80.8	72.5	68.5	
Actuated g/C Ratio		0.06	0.06	0.09	0.09	0.09	0.70	0.62	0.62	0.56	0.53	
Clearance Time (s)		6.5	6.5	6.5	6.5	6.5	6.0	6.5	6.5	6.0	6.5	
Vehicle Extension (s)		1.0	1.0	1.0	1.0	1.0	1.0	5.0	5.0	1.0	5.0	
Lane Grp Cap (vph)		105	91	158	159	149	408	2200	984	156	1862	
v/s Ratio Prot		c0.01		0.07	c0.07		c0.04	c0.41		0.01	0.32	
v/s Ratio Perm			0.00			0.00	0.18		0.05	0.13		
v/c Ratio		0.21	0.06	0.70	0.71	0.03	0.32	0.66	0.08	0.24	0.60	
Uniform Delay, d1		58.4	57.9	57.1	57.2	53.5	20.6	15.8	9.8	32.9	21.3	
Progression Factor		1.00	1.00	1.00	1.00	1.00	0.89	0.67	0.31	0.90	0.84	
Incremental Delay, d2		0.4	0.1	10.9	11.7	0.0	0.1	1.2	0.1	0.3	1.3	
Delay (s)		58.8	58.0	68.1	68.9	53.5	18.3	11.8	3.2	29.9	19.1	
Level of Service		E	E	E	E	D	B	B	A	C	B	
Approach Delay (s)		58.2			66.0			11.7			19.5	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM Average Control Delay			20.7				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			19.5		
Intersection Capacity Utilization			69.2%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Bill Arp Rd Hwy 5 & I-20 WB Ramp

2014 Build AM

8/20/2009

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	 				 			 			
Volume (vph)	337	0	500	128	1055	0	0	1074	215	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	6.5	6.0			6.0	6.0		
Lane Util. Factor	0.97		1.00	1.00	0.95			0.95	1.00		
Frt	1.00		0.85	1.00	1.00			1.00	0.85		
Flt Protected	0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)	3433		1583	1770	3539			3539	1583		
Flt Permitted	0.95		1.00	0.13	1.00			1.00	1.00		
Satd. Flow (perm)	3433		1583	250	3539			3539	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	366	0	543	139	1147	0	0	1167	234	0	0
RTOR Reduction (vph)	0	0	48	0	0	0	0	0	125	0	0
Lane Group Flow (vph)	366	0	495	139	1147	0	0	1167	109	0	0
Turn Type	Prot		custom	pm+pt					Perm		
Protected Phases	8			1	6			2			
Permitted Phases			8	6					2		
Actuated Green, G (s)	43.4		43.4	75.1	75.1			60.5	60.5		
Effective Green, g (s)	43.4		43.4	75.1	75.1			60.5	60.5		
Actuated g/C Ratio	0.33		0.33	0.58	0.58			0.47	0.47		
Clearance Time (s)	5.5		5.5	6.5	6.0			6.0	6.0		
Vehicle Extension (s)	3.0		3.0	4.0	5.0			5.0	5.0		
Lane Grp Cap (vph)	1146		528	239	2044			1647	737		
v/s Ratio Prot	0.11			0.04	c0.32			c0.33			
v/s Ratio Perm			c0.31	0.30					0.07		
v/c Ratio	0.32		0.94	0.58	0.56			0.71	0.15		
Uniform Delay, d1	32.3		42.0	39.9	17.2			27.7	19.9		
Progression Factor	1.00		1.00	0.74	0.79			0.44	0.46		
Incremental Delay, d2	0.2		24.4	2.6	0.7			2.2	0.4		
Delay (s)	32.4		66.3	32.2	14.3			14.3	9.5		
Level of Service	C		E	C	B			B	A		
Approach Delay (s)		52.7			16.2			13.5		0.0	
Approach LOS		D			B			B		A	
Intersection Summary											
HCM Average Control Delay			24.4		HCM Level of Service				C		
HCM Volume to Capacity ratio			0.76								
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				11.5		
Intersection Capacity Utilization			122.5%		ICU Level of Service				H		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
7: I-20 EB Off Ramp & Bill Arp Rd Hwy 5

2014 Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (vph)	392	0	240	0	0	0	0	775	875	586	807	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Lane Util. Factor	1.00		1.00					0.95	1.00	1.00	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770		1583					3539	1583	1770	3539	
Flt Permitted	0.95		1.00					1.00	1.00	0.16	1.00	
Satd. Flow (perm)	1770		1583					3539	1583	301	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	426	0	261	0	0	0	0	842	951	637	877	0
RTOR Reduction (vph)	0	0	150	0	0	0	0	0	360	0	0	0
Lane Group Flow (vph)	426	0	111	0	0	0	0	842	591	637	877	0
Turn Type	Prot	custom						Perm		pm+pt		
Protected Phases	4							6	5		2	
Permitted Phases		4						6		2		
Actuated Green, G (s)	31.2	31.2						46.3	46.3	87.3	87.3	
Effective Green, g (s)	31.2	31.2						46.3	46.3	87.3	87.3	
Actuated g/C Ratio	0.24	0.24						0.36	0.36	0.67	0.67	
Clearance Time (s)	5.5	5.5						6.0	6.0	5.5	6.0	
Vehicle Extension (s)	3.0	3.0						5.0	5.0	3.5	5.0	
Lane Grp Cap (vph)	425	380						1260	564	603	2377	
v/s Ratio Prot	c0.24							0.24	c0.29		0.25	
v/s Ratio Perm		0.07						0.37		c0.42		
v/c Ratio	1.00	0.29						0.67	1.05	1.06	0.37	
Uniform Delay, d1	49.4	40.4						35.4	41.8	32.7	9.3	
Progression Factor	1.00	1.00						0.47	0.63	1.43	0.52	
Incremental Delay, d2	44.2	0.4						1.0	36.1	48.5	0.4	
Delay (s)	93.6	40.8						17.5	62.4	95.4	5.2	
Level of Service	F	D						B	E	F	A	
Approach Delay (s)		73.6					0.0	41.3		43.2		
Approach LOS		E					A	D		D		
Intersection Summary												
HCM Average Control Delay	47.6			HCM Level of Service					D			
HCM Volume to Capacity ratio	1.02											
Actuated Cycle Length (s)	130.0			Sum of lost time (s)					11.0			
Intersection Capacity Utilization	122.5%			ICU Level of Service					H			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Douglas Blvd & Bill Arp Rd Hwy 5

2014 Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	387	106	28	97	146	118	40	1118	167	224	620	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Flt	1.00	0.97		1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3429		1770	1863	1583	1770	3470		1770	3411	
Flt Permitted	0.29	1.00		0.66	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	541	3429		1229	1863	1583	1770	3470		1770	3411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	421	115	30	105	159	128	43	1215	182	243	674	215
RTOR Reduction (vph)	0	18	0	0	0	113	0	9	0	0	23	0
Lane Group Flow (vph)	421	127	0	105	159	15	43	1388	0	243	866	0
Turn Type	pm+pt			pm+pt		Perm	Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8		8						
Actuated Green, G (s)	44.0	29.0		25.0	15.0	15.0	8.0	52.0		19.0	63.0	
Effective Green, g (s)	44.0	29.0		25.0	15.0	15.0	8.0	52.0		19.0	63.0	
Actuated g/C Ratio	0.34	0.22		0.19	0.12	0.12	0.06	0.40		0.15	0.48	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	410	765		278	215	183	109	1388		259	1653	
v/s Ratio Prot	c0.19	0.04		0.03	0.09		0.02	c0.40		c0.14	0.25	
v/s Ratio Perm	c0.16			0.04		0.01						
v/c Ratio	1.03	0.17		0.38	0.74	0.08	0.39	1.00		0.94	0.52	
Uniform Delay, d1	38.6	40.7		45.1	55.6	51.3	58.7	39.0		54.9	23.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.80	0.52	
Incremental Delay, d2	51.5	0.2		1.2	15.0	0.4	3.2	24.2		37.7	1.1	
Delay (s)	90.1	41.0		46.3	70.6	51.7	61.9	63.2		81.9	13.1	
Level of Service	F	D		D	E	D	E	E		F	B	
Approach Delay (s)		77.5			57.9			63.1			27.8	
Approach LOS		E			E			E			C	
Intersection Summary												
HCM Average Control Delay			53.5			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			99.2%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Stewart Pkwy & Bill Arp Rd Hwy 5

2014 Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	100	49	58	123	206	109	1164	24	145	579	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.69	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1279	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	109	53	63	134	224	118	1265	26	158	629	71
RTOR Reduction (vph)	0	0	40	0	0	201	0	0	11	0	0	35
Lane Group Flow (vph)	128	109	13	63	134	23	118	1265	15	158	629	36
Turn Type	Prot		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases			4	8		8			6			2
Actuated Green, G (s)	12.7	32.0	32.0	13.3	13.3	13.3	13.3	63.4	63.4	15.6	66.2	66.2
Effective Green, g (s)	12.7	32.0	32.0	13.3	13.3	13.3	13.3	63.4	63.4	15.6	66.2	66.2
Actuated g/C Ratio	0.10	0.25	0.25	0.10	0.10	0.10	0.10	0.49	0.49	0.12	0.51	0.51
Clearance Time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	173	459	390	131	191	162	181	1726	772	212	1802	806
v/s Ratio Prot	c0.07	0.06			c0.07		0.07	c0.36		c0.09	c0.18	
v/s Ratio Perm			0.01	0.05		0.01			0.01			0.02
v/c Ratio	0.74	0.24	0.03	0.48	0.70	0.14	0.65	0.73	0.02	0.75	0.35	0.04
Uniform Delay, d1	57.0	39.2	37.2	55.1	56.4	53.1	56.1	26.5	17.2	55.3	19.0	16.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.3	0.3	0.0	2.8	11.1	0.4	8.1	2.8	0.0	13.3	0.5	0.1
Delay (s)	70.3	39.5	37.3	57.9	67.5	53.6	64.3	29.3	17.3	68.5	19.6	16.1
Level of Service	E	D	D	E	E	D	E	C	B	E	B	B
Approach Delay (s)		52.7			58.6			32.0			28.3	
Approach LOS		D			E			C			C	
Intersection Summary												
HCM Average Control Delay			36.7				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			31.0		
Intersection Capacity Utilization			74.1%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

11: John West Rd & Bright Star Rd

2014 Build AM
8/20/2009



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	63	243	196	305	281	83
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	264	213	332	305	90
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				1042		
pX, platoon unblocked						
vC, conflicting volume	1108	351	396			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1108	351	396			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	64	62	82			
cM capacity (veh/h)	190	693	1163			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	333	545	396			
Volume Left	68	213	0			
Volume Right	264	0	90			
cSH	448	1163	1700			
Volume to Capacity	0.74	0.18	0.23			
Queue Length 95th (ft)	152	17	0			
Control Delay (s)	32.8	4.7	0.0			
Lane LOS	D	A				
Approach Delay (s)	32.8	4.7	0.0			
Approach LOS	D					
Intersection Summary						
Average Delay		10.6				
Intersection Capacity Utilization		75.2%		ICU Level of Service		D
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

12: Douglas Blvd & Bright Star Rd

2014 Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	3	99	0	223	2	302	352	320	219	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frt		0.86			1.00	0.85		1.00	0.85		1.00	
Flt Protected		1.00			0.95	1.00		1.00	1.00		0.97	
Satd. Flow (prot)		1611			1770	1583		1862	1583		1808	
Flt Permitted		1.00			0.95	1.00		1.00	1.00		0.62	
Satd. Flow (perm)		1611			1770	1583		1859	1583		1153	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3	108	0	242	2	328	383	348	238	2
RTOR Reduction (vph)	0	3	0	0	0	206	0	0	151	0	0	0
Lane Group Flow (vph)	0	0	0	0	108	36	0	330	232	0	588	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	3	3		4	4			6			2	
Permitted Phases						4	6		6	2		
Actuated Green, G (s)		0.9			11.5	11.5		47.0	47.0		45.6	
Effective Green, g (s)		0.9			11.5	11.5		47.0	47.0		45.6	
Actuated g/C Ratio		0.01			0.15	0.15		0.61	0.61		0.59	
Clearance Time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Vehicle Extension (s)		3.0			3.0	3.0		5.0	5.0		5.0	
Lane Grp Cap (vph)		19			262	235		1126	959		678	
v/s Ratio Prot		c0.00			c0.06							
v/s Ratio Perm						0.02		0.18	0.15		c0.51	
v/c Ratio		0.00			0.41	0.15		0.29	0.24		0.87	
Uniform Delay, d1		37.9			30.0	28.8		7.3	7.1		13.5	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		0.0			1.1	0.3		0.3	0.3		12.3	
Delay (s)		37.9			31.0	29.1		7.6	7.3		25.7	
Level of Service		D			C	C		A	A		C	
Approach Delay (s)		37.9			29.7			7.5			25.7	
Approach LOS		D			C			A			C	
Intersection Summary												
HCM Average Control Delay			18.7			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			77.6			Sum of lost time (s)			19.6			
Intersection Capacity Utilization			72.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 13: Cowan Mill Rd & Bright Star Rd

2014 Build AM
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	190	1	56	4	4	8	30	473	3	1	283	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	207	1	61	4	4	9	33	514	3	1	308	45
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	268	17	550	353								
Volume Left (vph)	207	4	33	1								
Volume Right (vph)	61	9	3	45								
Hadj (s)	0.05	-0.22	0.04	-0.04								
Departure Headway (s)	6.4	7.0	5.5	5.7								
Degree Utilization, x	0.48	0.03	0.84	0.56								
Capacity (veh/h)	527	435	640	592								
Control Delay (s)	15.2	10.2	31.1	15.9								
Approach Delay (s)	15.2	10.2	31.1	15.9								
Approach LOS	C	B	D	C								
Intersection Summary												
Delay				22.7								
HCM Level of Service				C								
Intersection Capacity Utilization				74.8%	ICU Level of Service	D						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis 14: Central Church Rd & Bright Star Rd

2014 Build AM
8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	8	99	436	26	146	214
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	108	474	28	159	233
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1038	488			502	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1038	488			502	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	81			85	
cM capacity (veh/h)	218	580			1062	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	116	502	391			
Volume Left	9	0	159			
Volume Right	108	28	0			
cSH	516	1700	1062			
Volume to Capacity	0.23	0.30	0.15			
Queue Length 95th (ft)	21	0	13			
Control Delay (s)	14.0	0.0	4.6			
Lane LOS	B		A			
Approach Delay (s)	14.0	0.0	4.6			
Approach LOS	B					
Intersection Summary						
Average Delay		3.4				
Intersection Capacity Utilization		60.4%		ICU Level of Service		B
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

15: Douglas Blvd & Arbor Place Mall Drwy

2014 Build AM

8/20/2009

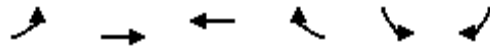
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	330	94	10	293	86	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.42	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	784	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	359	102	11	318	93	7
RTOR Reduction (vph)	0	53	0	0	0	6
Lane Group Flow (vph)	359	49	11	318	93	1
Turn Type		Perm	pm+pt			Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	18.1	18.1	24.1	24.1	3.8	3.8
Effective Green, g (s)	18.1	18.1	24.1	24.1	3.8	3.8
Actuated g/C Ratio	0.48	0.48	0.64	0.64	0.10	0.10
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1690	756	525	2250	344	159
v/s Ratio Prot	c0.10		0.00	c0.09	c0.03	
v/s Ratio Perm		0.03	0.01			0.00
v/c Ratio	0.21	0.06	0.02	0.14	0.27	0.00
Uniform Delay, d1	5.8	5.3	2.9	2.8	15.8	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.0	0.0	0.4	0.0
Delay (s)	5.8	5.4	2.9	2.8	16.2	15.4
Level of Service	A	A	A	A	B	B
Approach Delay (s)	5.7			2.8	16.1	
Approach LOS	A			A	B	
Intersection Summary						
HCM Average Control Delay			5.8	HCM Level of Service		A
HCM Volume to Capacity ratio			0.23			
Actuated Cycle Length (s)			37.9	Sum of lost time (s)		15.0
Intersection Capacity Utilization			22.5%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

16: Cedar Mountain Rd & Dorris Rd

2014 Build AM

8/20/2009



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	47	110	64	184	621	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4		6.3	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	0.90		0.99	
Flt Protected		0.99	1.00		0.96	
Satd. Flow (prot)		1835	1676		1764	
Flt Permitted		0.83	1.00		0.96	
Satd. Flow (perm)		1553	1676		1764	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	120	70	200	675	49
RTOR Reduction (vph)	0	0	140	0	5	0
Lane Group Flow (vph)	0	171	130	0	719	0
Turn Type	Perm					
Protected Phases		2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		17.9	17.9		30.4	
Effective Green, g (s)		17.9	17.9		30.4	
Actuated g/C Ratio		0.30	0.30		0.51	
Clearance Time (s)		5.4	5.4		6.3	
Vehicle Extension (s)		3.0	3.0		5.0	
Lane Grp Cap (vph)		463	500		894	
v/s Ratio Prot			0.08		c0.41	
v/s Ratio Perm		c0.11				
v/c Ratio		0.37	0.26		0.80	
Uniform Delay, d1		16.6	16.0		12.3	
Progression Factor		1.00	0.66		1.00	
Incremental Delay, d2		2.3	1.2		6.0	
Delay (s)		18.9	11.7		18.4	
Level of Service		B	B		B	
Approach Delay (s)		18.9	11.7		18.4	
Approach LOS		B	B		B	
Intersection Summary						
HCM Average Control Delay			16.9		HCM Level of Service	B
HCM Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	11.7
Intersection Capacity Utilization			76.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

17: Cedar Mountain Rd & S Flat Rock Rd

2014 Build AM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	303	402	25	114	59	127	23	18	48	11	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			5.5			5.1			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.92			0.96			0.99			1.00	
Flt Protected		1.00			0.99			0.96			0.96	
Satd. Flow (prot)		1720			1777			1769			1787	
Flt Permitted		1.00			0.89			0.74			0.72	
Satd. Flow (perm)		1718			1591			1352			1343	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	329	437	27	124	64	138	25	20	52	12	1
RTOR Reduction (vph)	0	74	0	0	23	0	0	7	0	0	1	0
Lane Group Flow (vph)	0	696	0	0	192	0	0	176	0	0	64	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	2			6			4			8		
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	37.7			38.0			11.4			11.5		
Effective Green, g (s)	37.7			38.0			11.4			11.5		
Actuated g/C Ratio	0.63			0.63			0.19			0.19		
Clearance Time (s)	5.8			5.5			5.1			5.0		
Vehicle Extension (s)	5.0			5.0			3.0			3.0		
Lane Grp Cap (vph)	1079			1008			257			257		
v/s Ratio Prot												
v/s Ratio Perm	c0.41			0.12			c0.13			0.05		
v/c Ratio	0.65			0.19			0.68			0.25		
Uniform Delay, d1	7.0			4.6			22.6			20.6		
Progression Factor	0.25			1.00			1.00			1.00		
Incremental Delay, d2	2.1			0.4			7.3			0.5		
Delay (s)	3.9			5.0			29.9			21.1		
Level of Service	A			A			C			C		
Approach Delay (s)	3.9			5.0			29.9			21.1		
Approach LOS	A			A			C			C		
Intersection Summary												
HCM Average Control Delay			8.8		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				10.9			
Intersection Capacity Utilization			60.3%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
19: W Stewarts Mill Rd & Woodland Dr

2014 Build AM
8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	3	205	9	29	349	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	223	10	32	379	8
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	226	41	387			
Volume Left (vph)	0	10	379			
Volume Right (vph)	223	0	8			
Hadj (s)	-0.56	0.08	0.22			
Departure Headway (s)	4.4	5.3	4.7			
Degree Utilization, x	0.28	0.06	0.51			
Capacity (veh/h)	759	621	733			
Control Delay (s)	9.1	8.6	12.6			
Approach Delay (s)	9.1	8.6	12.6			
Approach LOS	A	A	B			
Intersection Summary						
Delay			11.1			
HCM Level of Service			B			
Intersection Capacity Utilization			39.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

20: I-20 WB Off Ramp & Chapel Hill Rd

2014 Build AM
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (veh/h)	0	0	0	0	0	120	246	1313	0	0	571	170
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	130	267	1427	0	0	621	185
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								662				
pX, platoon unblocked	0.74	0.74		0.74	0.74	0.74				0.74		
vC, conflicting volume	1869	2583	310	2272	2583	714	621			1427		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1480	2439	310	2022	2439	0	621			886		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	84	72			100		
cM capacity (veh/h)	43	17	686	20	17	807	956			565		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3					
Volume Total	130	267	714	714	310	310	185					
Volume Left	0	267	0	0	0	0	0					
Volume Right	130	0	0	0	0	0	185					
cSH	807	956	1700	1700	1700	1700	1700					
Volume to Capacity	0.16	0.28	0.42	0.42	0.18	0.18	0.11					
Queue Length 95th (ft)	14	29	0	0	0	0	0					
Control Delay (s)	10.3	10.2	0.0	0.0	0.0	0.0	0.0					
Lane LOS	B	B										
Approach Delay (s)	10.3	1.6			0.0							
Approach LOS	B											
Intersection Summary												
Average Delay			1.6									
Intersection Capacity Utilization			50.4%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

21: I-20 EB Off Ramp @ Chapel Hill Rd &

2014 Build AM

8/20/2009

											
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	499	0	524	0	1088	866	105	738	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Lane Util. Factor	1.00		1.00		0.95	1.00	1.00	0.91			
Frt	1.00		0.85		1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1770		1583		3539	1583	1770	5085			
Flt Permitted	0.95		1.00		1.00	1.00	0.10	1.00			
Satd. Flow (perm)	1770		1583		3539	1583	194	5085			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	542	0	570	0	1183	941	114	802	0	0	0
RTOR Reduction (vph)	0	0	97	0	0	508	0	0	0	0	0
Lane Group Flow (vph)	542	0	473	0	1183	433	114	802	0	0	0
Turn Type	Prot		custom			Perm	pm+pt				
Protected Phases	4				6		5	2			
Permitted Phases			4			6	2				
Actuated Green, G (s)	41.9		41.9		55.0	55.0	67.6	67.6			
Effective Green, g (s)	41.9		41.9		55.0	55.0	67.6	67.6			
Actuated g/C Ratio	0.35		0.35		0.46	0.46	0.56	0.56			
Clearance Time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Vehicle Extension (s)	3.5		3.5		6.0	6.0	3.5	6.0			
Lane Grp Cap (vph)	618		553		1622	726	209	2865			
v/s Ratio Prot	c0.31				c0.33		c0.03	0.16			
v/s Ratio Perm			0.30			0.27	0.27				
v/c Ratio	0.88		0.86		0.73	0.60	0.55	0.28			
Uniform Delay, d1	36.6		36.2		26.4	24.2	18.7	13.6			
Progression Factor	1.00		1.00		1.00	1.00	1.00	1.00			
Incremental Delay, d2	13.5		12.6		2.9	3.6	3.2	0.2			
Delay (s)	50.2		48.8		29.4	27.8	21.9	13.8			
Level of Service	D		D		C	C	C	B			
Approach Delay (s)		49.5			28.7			14.8		0.0	
Approach LOS		D			C			B		A	
Intersection Summary											
HCM Average Control Delay			31.2		HCM Level of Service			C			
HCM Volume to Capacity ratio			0.78								
Actuated Cycle Length (s)			120.0		Sum of lost time (s)			15.5			
Intersection Capacity Utilization			75.6%		ICU Level of Service			D			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

30: Bill Arp Rd Hwy 5 & Bright Star Rd

2014 Build AM

8/20/2009

																									
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR													
Lane Configurations																									
Volume (veh/h)	311	872	0	0	419	7	0	0	0	4	0	155													
Sign Control	Free			Free			Stop			Stop															
Grade	0%			0%			0%			0%															
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92													
Hourly flow rate (vph)	338	948	0	0	455	8	0	0	0	4	0	168													
Pedestrians																									
Lane Width (ft)																									
Walking Speed (ft/s)																									
Percent Blockage																									
Right turn flare (veh)												8													
Median type	None			None																					
Median storage (veh)																									
Upstream signal (ft)																									
pX, platoon unblocked																									
vC, conflicting volume	455			948			2079	2079	948	2079	2079	455													
vC1, stage 1 conf vol																									
vC2, stage 2 conf vol																									
vCu, unblocked vol	455			948			2079	2079	948	2079	2079	455													
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2													
tC, 2 stage (s)																									
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3													
p0 queue free %	69			100			100	100	100	85	100	72													
cM capacity (veh/h)	1105			724			22	37	316	30	37	605													
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1																	
Volume Total	338	948	0	0	455	8	0	173																	
Volume Left	338	0	0	0	0	0	0	4																	
Volume Right	0	0	0	0	0	8	0	168																	
cSH	1105	1700	1700	1700	1700	1700	1700	620																	
Volume to Capacity	0.31	0.56	0.00	0.00	0.27	0.00	0.00	0.28																	
Queue Length 95th (ft)	33	0	0	0	0	0	0	28																	
Control Delay (s)	9.7	0.0	0.0	0.0	0.0	0.0	0.0	16.5																	
Lane LOS	A							A C																	
Approach Delay (s)	2.5			0.0			0.0	16.5																	
Approach LOS							A C																		
Intersection Summary																									
Average Delay							3.2																		
Intersection Capacity Utilization					62.6%	ICU Level of Service							B												
Analysis Period (min)					15																				

HCM Signalized Intersection Capacity Analysis

33: Bill Arp Rd Hwy 5 & Rose Ave

2014 Build AM
8/20/2009

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	30	542	33	364	381	618	26	20	282	280	26	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Flt	1.00	0.99		1.00	1.00	0.85	1.00	0.86		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3509		1770	1863	1583	1770	3044		1770	3539	1583
Flt Permitted	0.35	1.00		0.41	1.00	1.00	0.74	1.00		0.27	1.00	1.00
Satd. Flow (perm)	651	3509		773	1863	1583	1375	3044		500	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	589	36	396	414	672	28	22	307	304	28	34
RTOR Reduction (vph)	0	3	0	0	0	308	0	284	0	0	0	26
Lane Group Flow (vph)	33	622	0	396	414	364	28	45	0	304	28	8
Turn Type	pm+pt			pm+pt		Perm	pm+pt			pm+pt		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	60.6	60.6		70.5	70.5	70.5	13.7	9.9		38.2	29.4	29.4
Effective Green, g (s)	60.6	60.6		70.5	70.5	70.5	13.7	9.9		38.2	29.4	29.4
Actuated g/C Ratio	0.47	0.47		0.54	0.54	0.54	0.11	0.08		0.29	0.23	0.23
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	358	1636		543	1010	858	156	232		375	800	358
v/s Ratio Prot	0.00	c0.18		c0.09	0.22		0.01	0.01		c0.15	0.01	
v/s Ratio Perm	0.04			c0.30		0.23	0.01			c0.09		0.00
v/c Ratio	0.09	0.38		0.73	0.41	0.42	0.18	0.20		0.81	0.04	0.02
Uniform Delay, d1	20.1	22.5		26.3	17.5	17.7	52.9	56.3		39.7	39.2	39.1
Progression Factor	1.00	1.00		0.56	0.53	2.11	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.7		3.8	1.0	1.2	0.6	0.4		12.5	0.0	0.0
Delay (s)	20.2	23.2		18.4	10.3	38.6	53.4	56.7		52.2	39.3	39.1
Level of Service	C	C		B	B	D	D	E		D	D	D
Approach Delay (s)		23.0			25.3			56.5			50.0	
Approach LOS		C			C			E			D	

Intersection Summary

HCM Average Control Delay	31.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

39: Bright Star Connector & Bright Star Rd

2014 Build AM
8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	67	5	282	86	7	297
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	73	5	307	93	8	323
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	691	353			400	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	691	353			400	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	82	99			99	
cM capacity (veh/h)	408	690			1159	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1		
Volume Total	73	5	400	330		
Volume Left	73	0	0	8		
Volume Right	0	5	93	0		
cSH	408	690	1700	1159		
Volume to Capacity	0.18	0.01	0.24	0.01		
Queue Length 95th (ft)	16	1	0	0		
Control Delay (s)	15.7	10.3	0.0	0.3		
Lane LOS	C	B		A		
Approach Delay (s)	15.4		0.0	0.3		
Approach LOS	C					
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			31.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

112: West Strickland St & Bankhead Hwy RR Crossing

2014 Build AM

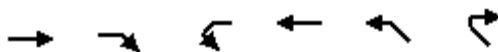
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	29	440	14	10	1	186	2	24	2	1	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	32	478	15	11	1	202	2	26	2	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	432	438	1	919	425	15	1			28		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	432	438	1	919	425	15	1			28		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	93	56	87	98	100	88			100		
cM capacity (veh/h)	474	448	1083	120	456	1064	1622			1585		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	510	27	230	3								
Volume Left	0	15	202	2								
Volume Right	478	1	26	0								
cSH	996	180	1622	1585								
Volume to Capacity	0.51	0.15	0.12	0.00								
Queue Length 95th (ft)	75	13	11	0								
Control Delay (s)	12.3	28.6	6.7	4.9								
Lane LOS	B	D	A	A								
Approach Delay (s)	12.3	28.6	6.7	4.9								
Approach LOS	B	D										
Intersection Summary												
Average Delay			11.2									
Intersection Capacity Utilization			50.7%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

1: Bankhead Hwy US78 & John West Rd

2014 Build PM
8/20/2009



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑	↗		↖	↘	
Volume (veh/h)	346	208	7	726	308	24
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	376	226	8	789	335	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			602		1180	376
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			602		1180	376
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		0	96
cM capacity (veh/h)			975		208	670
Direction, Lane #	EB 1	EB 2	WB 1	NW 1		
Volume Total	376	226	797	361		
Volume Left	0	0	8	335		
Volume Right	0	226	0	26		
cSH	1700	1700	975	219		
Volume to Capacity	0.22	0.13	0.01	1.64		
Queue Length 95th (ft)	0	0	1	586		
Control Delay (s)	0.0	0.0	0.2	348.7		
Lane LOS			A	F		
Approach Delay (s)	0.0		0.2	348.7		
Approach LOS				F		
Intersection Summary						
Average Delay			71.6			
Intersection Capacity Utilization			69.0%	ICU Level of Service		C
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

2: Bankhead Hwy US 78 & Bill Arp Rd Hwy 5

2014 Build PM

8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	321	116	241	620	183	424
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.91	
Flt Protected	1.00	1.00	0.95	1.00	0.99	
Satd. Flow (prot)	1863	1583	1770	1863	1662	
Flt Permitted	1.00	1.00	0.28	1.00	0.99	
Satd. Flow (perm)	1863	1583	514	1863	1662	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	349	126	262	674	199	461
RTOR Reduction (vph)	0	92	0	0	99	0
Lane Group Flow (vph)	349	34	262	674	561	0
Turn Type		Perm	pm+pt			
Protected Phases	6		5	2	4	
Permitted Phases		6	2			
Actuated Green, G (s)	21.3	21.3	36.4	36.4	29.6	
Effective Green, g (s)	21.3	21.3	36.4	36.4	29.6	
Actuated g/C Ratio	0.27	0.27	0.47	0.47	0.38	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	
Lane Grp Cap (vph)	509	432	386	869	631	
v/s Ratio Prot	0.19		0.08	c0.36	c0.34	
v/s Ratio Perm		0.02	0.24			
v/c Ratio	0.69	0.08	0.68	0.78	0.89	
Uniform Delay, d1	25.4	21.1	14.6	17.4	22.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.9	0.2	3.7	5.1	14.0	
Delay (s)	30.2	21.2	18.3	22.5	36.6	
Level of Service	C	C	B	C	D	
Approach Delay (s)	27.9			21.3	36.6	
Approach LOS	C			C	D	
Intersection Summary						
HCM Average Control Delay			27.7		HCM Level of Service	C
HCM Volume to Capacity ratio			0.83			
Actuated Cycle Length (s)			78.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			81.5%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Bankhead Hwy US78 & Rose Ave

2014 Build PM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	415	23	102	544	86	69	267	122	43	156	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Flt	1.00	0.99		1.00	0.98			0.96			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1848		1770	1825			1782			1809	
Flt Permitted	0.31	1.00		0.23	1.00			0.91			0.83	
Satd. Flow (perm)	583	1848		430	1825			1631			1509	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	451	25	111	591	93	75	290	133	47	170	38
RTOR Reduction (vph)	0	2	0	0	4	0	0	11	0	0	6	0
Lane Group Flow (vph)	28	474	0	111	680	0	0	487	0	0	249	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases	6			5		2	8			4		
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	34.4	34.4		48.5	48.5			34.0			34.0	
Effective Green, g (s)	34.4	34.4		48.5	48.5			34.0			34.0	
Actuated g/C Ratio	0.37	0.37		0.52	0.52			0.37			0.37	
Clearance Time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Vehicle Extension (s)	6.0	6.0		3.0	6.0			3.0			8.0	
Lane Grp Cap (vph)	217	687		355	956			599			554	
v/s Ratio Prot		0.26		0.03	c0.37							
v/s Ratio Perm	0.05			0.13				c0.30			0.17	
v/c Ratio	0.13	0.69		0.31	0.71			0.81			0.45	
Uniform Delay, d1	19.2	24.6		13.9	16.7			26.4			22.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.8	4.5		0.5	3.6			8.2			2.5	
Delay (s)	20.0	29.1		14.4	20.3			34.7			24.7	
Level of Service	B	C		B	C			C			C	
Approach Delay (s)		28.5			19.5			34.7			24.7	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM Average Control Delay			26.1			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			92.6			Sum of lost time (s)			10.1			
Intersection Capacity Utilization			86.9%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Concourse Pkwy & Bill Arp Rd Hwy 5

2014 Build PM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	32	322	571	32	101	347	1960	479	57	1508	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5	6.5	6.5	6.5	6.0	6.5	6.5	6.0	6.5	
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.96	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1796	1583	1681	1694	1583	1770	3539	1583	1770	3517	
Flt Permitted		0.96	1.00	0.95	0.96	1.00	0.06	1.00	1.00	0.07	1.00	
Satd. Flow (perm)		1796	1583	1681	1694	1583	117	3539	1583	130	3517	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	35	350	621	35	110	377	2130	521	62	1639	71
RTOR Reduction (vph)	0	0	159	0	0	61	0	0	176	0	2	0
Lane Group Flow (vph)	0	135	191	329	327	49	377	2130	345	62	1708	0
Turn Type	Split		Perm	Split		Perm	pm+pt		Perm		pm+pt	
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases			4			3	6		6		2	
Actuated Green, G (s)		12.5	12.5	23.5	23.5	23.5	84.5	74.5	74.5	61.5	57.5	
Effective Green, g (s)		12.5	12.5	23.5	23.5	23.5	84.5	74.5	74.5	61.5	57.5	
Actuated g/C Ratio		0.09	0.09	0.17	0.17	0.17	0.60	0.53	0.53	0.44	0.41	
Clearance Time (s)		6.5	6.5	6.5	6.5	6.5	6.0	6.5	6.5	6.0	6.5	
Vehicle Extension (s)		1.0	1.0	1.0	1.0	1.0	1.0	5.0	5.0	1.0	5.0	
Lane Grp Cap (vph)		160	141	282	284	266	319	1883	842	104	1444	
v/s Ratio Prot		0.08		c0.20	0.19		c0.18	c0.60		0.02	0.49	
v/s Ratio Perm			c0.12			0.03	c0.54		0.22	0.25		
v/c Ratio		0.84	1.35	1.17	1.15	0.19	1.18	1.13	0.41	0.60	1.18	
Uniform Delay, d1		62.8	63.8	58.2	58.2	50.0	48.2	32.8	19.6	33.4	41.2	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.02	0.87	0.86	1.05	1.25	
Incremental Delay, d2		30.2	197.7	106.5	100.7	0.1	85.0	59.8	0.1	0.6	82.9	
Delay (s)		93.0	261.4	164.7	159.0	50.2	134.0	88.2	16.9	35.6	134.5	
Level of Service		F	F	F	F	D	F	F	B	D	F	
Approach Delay (s)		214.5			145.8			81.7			131.0	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM Average Control Delay			114.9			HCM Level of Service			F			
HCM Volume to Capacity ratio			1.23									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			25.5			
Intersection Capacity Utilization			102.1%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Bill Arp Rd Hwy 5 & I-20 WB Ramp

2014 Build PM

8/20/2009

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	 				 			 			
Volume (vph)	979	0	1217	284	1527	0	0	1810	583	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	6.5	6.0			6.0	6.0		
Lane Util. Factor	0.97		1.00	1.00	0.95			0.95	1.00		
Frt	1.00		0.85	1.00	1.00			1.00	0.85		
Flt Protected	0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)	3433		1583	1770	3539			3539	1583		
Flt Permitted	0.95		1.00	0.07	1.00			1.00	1.00		
Satd. Flow (perm)	3433		1583	121	3539			3539	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1064	0	1323	309	1660	0	0	1967	634	0	0
RTOR Reduction (vph)	0	0	8	0	0	0	0	0	236	0	0
Lane Group Flow (vph)	1064	0	1315	309	1660	0	0	1967	398	0	0
Turn Type	Prot		custom	pm+pt					Perm		
Protected Phases	8			1	6			2			
Permitted Phases			8	6					2		
Actuated Green, G (s)	55.5		55.5	73.0	73.0			55.0	55.0		
Effective Green, g (s)	55.5		55.5	73.0	73.0			55.0	55.0		
Actuated g/C Ratio	0.40		0.40	0.52	0.52			0.39	0.39		
Clearance Time (s)	5.5		5.5	6.5	6.0			6.0	6.0		
Vehicle Extension (s)	3.0		3.0	4.0	5.0			5.0	5.0		
Lane Grp Cap (vph)	1361		628	199	1845			1390	622		
v/s Ratio Prot	0.31			c0.13	0.47			0.56			
v/s Ratio Perm			c0.83	c0.68					0.25		
v/c Ratio	0.78		2.09	1.55	0.90			1.42	0.64		
Uniform Delay, d1	37.0		42.3	59.8	30.2			42.5	34.5		
Progression Factor	1.00		1.00	0.85	0.74			0.76	0.55		
Incremental Delay, d2	3.0		497.4	251.0	0.8			187.2	0.5		
Delay (s)	40.0		539.6	302.0	23.3			219.7	19.4		
Level of Service	D		F	F	C			F	B		
Approach Delay (s)		316.9			67.0			170.9		0.0	
Approach LOS		F			E			F		A	
Intersection Summary											
HCM Average Control Delay			191.6		HCM Level of Service				F		
HCM Volume to Capacity ratio			1.76								
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				12.0		
Intersection Capacity Utilization			127.1%		ICU Level of Service				H		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

7: I-20 EB Off Ramp & Bill Arp Rd Hwy 5

2014 Build PM

8/20/2009

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations								 			 			
Volume (vph)	530	0	208	0	0	0	0	1266	482	818	1961	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)	5.5		5.5					6.0	6.0	5.5	6.0			
Lane Util. Factor	1.00		1.00					0.95	1.00	1.00	0.95			
Frt	1.00		0.85					1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1770		1583					3539	1583	1770	3539			
Flt Permitted	0.95		1.00					1.00	1.00	0.06	1.00			
Satd. Flow (perm)	1770		1583					3539	1583	114	3539			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	576	0	226	0	0	0	0	1376	524	889	2132	0		
RTOR Reduction (vph)	0	0	13	0	0	0	0	0	277	0	0	0		
Lane Group Flow (vph)	576	0	213	0	0	0	0	1376	247	889	2132	0		
Turn Type	Prot	custom						Perm		pm+pt				
Protected Phases	4							6	5		2			
Permitted Phases	4									6	2			
Actuated Green, G (s)	30.5	30.5									66.0	66.0	98.0	98.0
Effective Green, g (s)	30.5	30.5									66.0	66.0	98.0	98.0
Actuated g/C Ratio	0.22	0.22									0.47	0.47	0.70	0.70
Clearance Time (s)	5.5	5.5									6.0	6.0	5.5	6.0
Vehicle Extension (s)	3.0	3.0									5.0	5.0	3.5	5.0
Lane Grp Cap (vph)	386	345									1668	746	393	2477
v/s Ratio Prot	c0.33										0.39	c0.43		0.60
v/s Ratio Perm	0.13									0.16		c1.16		
v/c Ratio	1.49	0.62									0.82	0.33	2.26	0.86
Uniform Delay, d1	54.8	49.5									32.0	23.2	47.0	15.8
Progression Factor	1.00	1.00									0.46	0.83	1.14	0.38
Incremental Delay, d2	234.8	3.3									0.5	0.1	568.7	0.4
Delay (s)	289.6	52.7									15.1	19.4	622.3	6.4
Level of Service	F	D									B	B	F	A
Approach Delay (s)	222.8		0.0									16.3	187.6	
Approach LOS	F		A									B	F	
Intersection Summary														
HCM Average Control Delay	135.7			HCM Level of Service					F					
HCM Volume to Capacity ratio	2.02													
Actuated Cycle Length (s)	140.0			Sum of lost time (s)					11.0					
Intersection Capacity Utilization	127.1%			ICU Level of Service					H					
Analysis Period (min)	15													
c Critical Lane Group														

HCM Signalized Intersection Capacity Analysis

8: Douglas Blvd & Bill Arp Rd Hwy 5

2014 Build PM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	388	307	81	305	238	584	111	780	305	466	1372	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3429		1770	1863	1583	1770	3390		1770	3445	
Flt Permitted	0.20	1.00		0.21	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	381	3429		396	1863	1583	1770	3390		1770	3445	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	422	334	88	332	259	635	121	848	332	507	1491	321
RTOR Reduction (vph)	0	17	0	0	0	298	0	29	0	0	13	0
Lane Group Flow (vph)	422	405	0	332	259	337	121	1151	0	507	1799	0
Turn Type	pm+pt			pm+pt		Perm	Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8		8						
Actuated Green, G (s)	42.0	21.0		44.0	22.0	22.0	10.0	44.0		33.0	67.0	
Effective Green, g (s)	42.0	21.0		44.0	22.0	22.0	10.0	44.0		33.0	67.0	
Actuated g/C Ratio	0.30	0.15		0.31	0.16	0.16	0.07	0.31		0.24	0.48	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	323	514		340	293	249	126	1065		417	1649	
v/s Ratio Prot	c0.20	0.12		0.15	0.14		0.07	0.34		c0.29	c0.52	
v/s Ratio Perm	0.20			0.15		c0.21						
v/c Ratio	1.31	0.79		0.98	0.88	1.36	0.96	1.08		1.22	1.09	
Uniform Delay, d1	43.5	57.4		41.5	57.8	59.0	64.8	48.0		53.5	36.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.85	0.61	
Incremental Delay, d2	158.6	9.0		42.2	27.0	183.9	67.9	51.9		108.4	46.8	
Delay (s)	202.1	66.4		83.7	84.8	242.9	132.7	99.9		153.9	68.9	
Level of Service	F	E		F	F	F	F	F		F	E	
Approach Delay (s)	134.2			166.4			103.0			87.5		
Approach LOS	F			F			F			F		
Intersection Summary												
HCM Average Control Delay			115.0	HCM Level of Service			F					
HCM Volume to Capacity ratio			1.19									
Actuated Cycle Length (s)			140.0	Sum of lost time (s)			15.0					
Intersection Capacity Utilization			107.8%	ICU Level of Service			G					
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Stewart Pkwy & Bill Arp Rd Hwy 5

2014 Build PM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	204	254	204	50	181	175	172	850	22	331	1255	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.59	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1099	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	222	276	222	54	197	190	187	924	24	360	1364	162
RTOR Reduction (vph)	0	0	156	0	0	167	0	0	14	0	0	83
Lane Group Flow (vph)	222	276	66	54	197	23	187	924	10	360	1364	79
Turn Type	Prot		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases			4	8		8			6			2
Actuated Green, G (s)	19.2	41.8	41.8	16.6	16.6	16.6	16.9	47.7	47.7	31.5	62.8	62.8
Effective Green, g (s)	19.2	41.8	41.8	16.6	16.6	16.6	16.9	47.7	47.7	31.5	62.8	62.8
Actuated g/C Ratio	0.14	0.30	0.30	0.12	0.12	0.12	0.12	0.34	0.34	0.22	0.45	0.45
Clearance Time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	243	556	473	130	221	188	214	1206	539	398	1587	710
v/s Ratio Prot	c0.13	0.15			c0.11		0.11	0.26		c0.20	c0.39	
v/s Ratio Perm			0.04	0.05		0.01			0.01			0.05
v/c Ratio	0.91	0.50	0.14	0.42	0.89	0.12	0.87	0.77	0.02	0.90	0.86	0.11
Uniform Delay, d1	59.6	40.4	35.9	57.2	60.8	55.2	60.5	41.2	30.6	52.8	34.6	22.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	34.7	0.7	0.1	2.1	32.9	0.3	30.1	4.7	0.1	23.3	6.3	0.3
Delay (s)	94.3	41.1	36.1	59.3	93.7	55.5	90.6	45.9	30.7	76.1	40.9	22.7
Level of Service	F	D	D	E	F	E	F	D	C	E	D	C
Approach Delay (s)		56.0			73.0			52.9			46.1	
Approach LOS		E			E			D			D	
Intersection Summary												
HCM Average Control Delay			52.5				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			25.0		
Intersection Capacity Utilization			85.5%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

11: John West Rd & Bright Star Rd

2014 Build PM
8/20/2009



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	98	161	239	398	622	108
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	107	175	260	433	676	117
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				1042		
pX, platoon unblocked						
vC, conflicting volume	1687	735	793			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1687	735	793			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	58	69			
cM capacity (veh/h)	71	420	828			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	282	692	793			
Volume Left	107	260	0			
Volume Right	175	0	117			
cSH	146	828	1700			
Volume to Capacity	1.92	0.31	0.47			
Queue Length 95th (ft)	544	34	0			
Control Delay (s)	490.9	7.2	0.0			
Lane LOS	F	A				
Approach Delay (s)	490.9	7.2	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay			81.0			
Intersection Capacity Utilization			98.8%	ICU Level of Service		F
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

12: Douglas Blvd & Bright Star Rd

2014 Build PM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	2	2	293	4	389	3	237	256	435	350	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frt		0.96			1.00	0.85		1.00	0.85		1.00	
Flt Protected		0.98			0.95	1.00		1.00	1.00		0.97	
Satd. Flow (prot)		1753			1775	1583		1862	1583		1812	
Flt Permitted		0.98			0.95	1.00		0.99	1.00		0.68	
Satd. Flow (perm)		1753			1775	1583		1851	1583		1260	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	2	2	318	4	423	3	258	278	473	380	2
RTOR Reduction (vph)	0	2	0	0	0	351	0	0	94	0	0	0
Lane Group Flow (vph)	0	5	0	0	322	72	0	261	184	0	855	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	3	3		4	4			6			2	
Permitted Phases						4	6		6	2		
Actuated Green, G (s)		1.5			20.3	20.3		78.7	78.7		77.3	
Effective Green, g (s)		1.5			20.3	20.3		78.7	78.7		77.3	
Actuated g/C Ratio		0.01			0.17	0.17		0.66	0.66		0.65	
Clearance Time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Vehicle Extension (s)		3.0			3.0	3.0		5.0	5.0		5.0	
Lane Grp Cap (vph)		22			304	271		1227	1050		821	
v/s Ratio Prot		c0.00			c0.18							
v/s Ratio Perm						0.05		0.14	0.12		c0.68	
v/c Ratio		0.23			1.06	0.27		0.21	0.18		1.04	
Uniform Delay, d1		58.0			49.2	42.7		7.8	7.6		20.7	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		5.2			68.1	0.5		0.2	0.2		42.7	
Delay (s)		63.3			117.3	43.3		8.0	7.8		63.4	
Level of Service		E			F	D		A	A		E	
Approach Delay (s)		63.3			75.3			7.9			63.4	
Approach LOS		E			E			A			E	
Intersection Summary												
HCM Average Control Delay			53.6				HCM Level of Service			D		
HCM Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			118.7				Sum of lost time (s)			19.6		
Intersection Capacity Utilization			93.8%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
13: Cowan Mill Rd & Bright Star Rd

2014 Build PM
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	121	7	58	7	3	10	68	382	6	12	484	157
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	132	8	63	8	3	11	74	415	7	13	526	171
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	202	22	496	710								
Volume Left (vph)	132	8	74	13								
Volume Right (vph)	63	11	7	171								
Hadj (s)	-0.02	-0.20	0.06	-0.11								
Departure Headway (s)	6.8	7.4	5.7	5.4								
Degree Utilization, x	0.38	0.04	0.79	1.07								
Capacity (veh/h)	505	434	618	654								
Control Delay (s)	13.9	10.7	26.7	76.9								
Approach Delay (s)	13.9	10.7	26.7	76.9								
Approach LOS	B	B	D	F								
Intersection Summary												
Delay			49.6									
HCM Level of Service			E									
Intersection Capacity Utilization			83.6%	ICU Level of Service					E			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

14: Central Church Rd & Bright Star Rd

2014 Build PM

8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	14	169	289	42	190	393
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	184	314	46	207	427
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1177	337			360	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1177	337			360	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	74			83	
cM capacity (veh/h)	175	705			1199	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	199	360	634			
Volume Left	15	0	207			
Volume Right	184	46	0			
cSH	572	1700	1199			
Volume to Capacity	0.35	0.21	0.17			
Queue Length 95th (ft)	39	0	16			
Control Delay (s)	14.6	0.0	4.1			
Lane LOS	B		A			
Approach Delay (s)	14.6	0.0	4.1			
Approach LOS	B					
Intersection Summary						
Average Delay		4.6				
Intersection Capacity Utilization		70.2%		ICU Level of Service		C
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

15: Douglas Blvd & Arbor Place Mall Drwy

2014 Build PM

8/20/2009

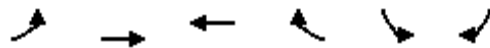
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Volume (vph)	561	415	63	710	583	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.28	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	526	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	610	451	68	772	634	36
RTOR Reduction (vph)	0	295	0	0	0	25
Lane Group Flow (vph)	610	156	68	772	634	11
Turn Type		Perm	pm+pt			Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	20.2	20.2	31.1	31.1	17.3	17.3
Effective Green, g (s)	20.2	20.2	31.1	31.1	17.3	17.3
Actuated g/C Ratio	0.35	0.35	0.53	0.53	0.30	0.30
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1224	548	406	1885	1017	469
v/s Ratio Prot	c0.17		0.02	c0.22	c0.18	
v/s Ratio Perm		0.10	0.07			0.01
v/c Ratio	0.50	0.28	0.17	0.41	0.62	0.02
Uniform Delay, d1	15.1	13.9	7.3	8.2	17.7	14.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.3	0.2	0.1	1.2	0.0
Delay (s)	15.4	14.1	7.5	8.3	18.9	14.6
Level of Service	B	B	A	A	B	B
Approach Delay (s)	14.9			8.2	18.7	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay			13.7		HCM Level of Service	B
HCM Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			58.4		Sum of lost time (s)	15.0
Intersection Capacity Utilization			48.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

16: Cedar Mountain Rd & Dorris Rd

2014 Build PM

8/20/2009



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Volume (vph)	42	55	112	637	305	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4		5.6	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	0.89		0.98	
Flt Protected		0.98	1.00		0.96	
Satd. Flow (prot)		1823	1649		1749	
Flt Permitted		0.57	1.00		0.96	
Satd. Flow (perm)		1053	1649		1749	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	60	122	692	332	62
RTOR Reduction (vph)	0	0	301	0	11	0
Lane Group Flow (vph)	0	106	513	0	383	0
Turn Type	Perm					
Protected Phases		2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		35.9	35.9		18.1	
Effective Green, g (s)		35.9	35.9		18.1	
Actuated g/C Ratio		0.55	0.55		0.28	
Clearance Time (s)		5.4	5.4		5.6	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		582	911		487	
v/s Ratio Prot			c0.31		c0.22	
v/s Ratio Perm		0.10				
v/c Ratio		0.18	0.56		0.79	
Uniform Delay, d1		7.2	9.5		21.7	
Progression Factor		1.00	1.21		1.00	
Incremental Delay, d2		0.7	1.7		8.2	
Delay (s)		7.9	13.2		29.9	
Level of Service		A	B		C	
Approach Delay (s)		7.9	13.2		29.9	
Approach LOS		A	B		C	
Intersection Summary						
HCM Average Control Delay			17.7		HCM Level of Service	B
HCM Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			65.0		Sum of lost time (s)	11.0
Intersection Capacity Utilization			74.7%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

17: Cedar Mountain Rd & S Flat Rock Rd

2014 Build PM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	119	225	23	254	18	507	7	26	21	7	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			5.5			5.1			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.91			0.99			0.99			0.99	
Flt Protected		1.00			1.00			0.96			0.97	
Satd. Flow (prot)		1699			1840			1768			1785	
Flt Permitted		1.00			0.96			0.71			0.72	
Satd. Flow (perm)		1693			1765			1323			1334	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	129	245	25	276	20	551	8	28	23	8	2
RTOR Reduction (vph)	0	95	0	0	3	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	283	0	0	318	0	0	584	0	0	32	0
Turn Type	Perm		Perm		Perm		Perm		Perm		Perm	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		21.4			21.7			32.7			32.8	
Effective Green, g (s)		21.4			21.7			32.7			32.8	
Actuated g/C Ratio		0.33			0.33			0.50			0.50	
Clearance Time (s)		5.8			5.5			5.1			5.0	
Vehicle Extension (s)		5.0			5.0			3.0			3.0	
Lane Grp Cap (vph)		557			589			666			673	
v/s Ratio Prot												
v/s Ratio Perm		0.17			0.18			0.44			0.02	
v/c Ratio		0.51			0.54			0.88			0.05	
Uniform Delay, d1		17.6			17.6			14.4			8.2	
Progression Factor		0.38			1.00			1.00			1.00	
Incremental Delay, d2		2.5			3.5			12.5			0.0	
Delay (s)		9.3			21.1			26.8			8.2	
Level of Service		A			C			C			A	
Approach Delay (s)		9.3			21.1			26.8			8.2	
Approach LOS		A			C			C			A	
Intersection Summary												
HCM Average Control Delay		19.9			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.74										
Actuated Cycle Length (s)		65.0			Sum of lost time (s)			10.6				
Intersection Capacity Utilization		74.5%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
19: W Stewarts Mill Rd & Woodland Dr

2014 Build PM
8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	26	409	8	20	389	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	445	9	22	423	18
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	473	30	441			
Volume Left (vph)	0	9	423			
Volume Right (vph)	445	0	18			
Hadj (s)	-0.53	0.09	0.20			
Departure Headway (s)	4.7	6.0	5.4			
Degree Utilization, x	0.62	0.05	0.66			
Capacity (veh/h)	735	537	645			
Control Delay (s)	15.0	9.3	18.0			
Approach Delay (s)	15.0	9.3	18.0			
Approach LOS	C	A	C			
Intersection Summary						
Delay			16.2			
HCM Level of Service			C			
Intersection Capacity Utilization			55.9%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

20: I-20 WB Off Ramp & Chapel Hill Rd

2014 Build PM
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (veh/h)	0	0	0	0	0	211	512	898	0	0	1205	516
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	229	557	976	0	0	1310	561
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								662				
pX, platoon unblocked	0.78	0.78		0.78	0.78	0.78				0.78		
vC, conflicting volume	2911	3399	655	2744	3399	488	1310			976		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2886	3509	655	2673	3509	0	1310			417		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	100	0	0	73	0			100		
cM capacity (veh/h)	0	0	409	0	0	850	524			892		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3					
Volume Total	229	557	488	488	655	655	561					
Volume Left	0	557	0	0	0	0	0					
Volume Right	229	0	0	0	0	0	561					
cSH	850	524	1700	1700	1700	1700	1700					
Volume to Capacity	0.27	1.06	0.29	0.29	0.39	0.39	0.33					
Queue Length 95th (ft)	27	415	0	0	0	0	0					
Control Delay (s)	10.8	84.7	0.0	0.0	0.0	0.0	0.0					
Lane LOS	B	F										
Approach Delay (s)	10.8	30.8			0.0							
Approach LOS	B											
Intersection Summary												
Average Delay			13.7									
Intersection Capacity Utilization			87.2%		ICU Level of Service				E			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

21: I-20 EB Off Ramp @ Chapel Hill Rd &

2014 Build PM
8/20/2009

											
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	180	0	383	0	1208	601	77	1812	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Lane Util. Factor	1.00		1.00		0.95	1.00	1.00	0.91			
Frt	1.00		0.85		1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1770		1583		3539	1583	1770	5085			
Flt Permitted	0.95		1.00		1.00	1.00	0.10	1.00			
Satd. Flow (perm)	1770		1583		3539	1583	189	5085			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	0	416	0	1313	653	84	1970	0	0	0
RTOR Reduction (vph)	0	0	6	0	0	300	0	0	0	0	0
Lane Group Flow (vph)	196	0	410	0	1313	353	84	1970	0	0	0
Turn Type	Prot		custom			Perm	pm+pt				
Protected Phases	4				6		5	2			
Permitted Phases			4			6		2			
Actuated Green, G (s)	35.8		35.8		63.0	63.0	73.7	73.7			
Effective Green, g (s)	35.8		35.8		63.0	63.0	73.7	73.7			
Actuated g/C Ratio	0.30		0.30		0.52	0.52	0.61	0.61			
Clearance Time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Vehicle Extension (s)	3.5		3.5		6.0	6.0	3.5	6.0			
Lane Grp Cap (vph)	528		472		1858	831	191	3123			
v/s Ratio Prot	0.11				c0.37		0.02	c0.39			
v/s Ratio Perm			c0.26			0.22	0.25				
v/c Ratio	0.37		0.87		0.71	0.42	0.44	0.63			
Uniform Delay, d1	33.2		39.9		21.5	17.4	15.9	14.6			
Progression Factor	1.00		1.00		1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.5		15.8		2.3	1.6	1.9	1.0			
Delay (s)	33.7		55.6		23.8	19.0	17.8	15.6			
Level of Service	C		E		C	B	B	B			
Approach Delay (s)		48.6			22.2			15.7		0.0	
Approach LOS		D			C			B		A	
Intersection Summary											
HCM Average Control Delay			22.8		HCM Level of Service			C			
HCM Volume to Capacity ratio			0.78								
Actuated Cycle Length (s)			120.0		Sum of lost time (s)			16.0			
Intersection Capacity Utilization			67.5%		ICU Level of Service			C			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

30: Bill Arp Rd Hwy 5 & Bright Star Rd

2014 Build PM

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	192	552	0	0	857	3	0	0	0	1	0	198
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	209	600	0	0	932	3	0	0	0	1	0	215
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	932			600			1949	1949	600	1949	1949	932
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	932			600			1949	1949	600	1949	1949	932
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	72			100			100	100	100	97	100	33
cM capacity (veh/h)	735			977			13	46	501	38	46	323
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	209	600	0	0	932	3	0	216				
Volume Left	209	0	0	0	0	0	0	1				
Volume Right	0	0	0	0	0	3	0	215				
cSH	735	1700	1700	1700	1700	1700	1700	325				
Volume to Capacity	0.28	0.35	0.00	0.00	0.55	0.00	0.00	0.67				
Queue Length 95th (ft)	29	0	0	0	0	0	0	112				
Control Delay (s)	11.8	0.0	0.0	0.0	0.0	0.0	0.0	36.1				
Lane LOS	B						A	E				
Approach Delay (s)	3.1			0.0			0.0	36.1				
Approach LOS							A	E				
Intersection Summary												
Average Delay			5.2									
Intersection Capacity Utilization			69.1%			ICU Level of Service			C			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

33: Bill Arp Rd Hwy 5 & Rose Ave

2014 Build PM
8/20/2009

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	79	309	145	1007	632	542	203	72	1010	339	130	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	1.00	0.85	1.00	0.86		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3369		1770	1863	1583	1770	3044		1770	3539	1583
Flt Permitted	1.00	1.00		1.00	1.00	1.00	0.66	1.00		0.17	1.00	1.00
Satd. Flow (perm)	1863	3369		1863	1863	1583	1234	3044		318	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	336	158	1095	687	589	221	78	1098	368	141	95
RTOR Reduction (vph)	0	39	0	0	0	288	0	644	0	0	0	79
Lane Group Flow (vph)	86	455	0	1095	687	301	221	532	0	368	141	16
Turn Type	pm+pt			pm+pt		Perm	pm+pt			pm+pt		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	20.0	20.0		63.9	63.9	63.9	34.6	20.0		41.4	23.4	23.4
Effective Green, g (s)	20.0	20.0		63.9	63.9	63.9	34.6	20.0		41.4	23.4	23.4
Actuated g/C Ratio	0.14	0.14		0.46	0.46	0.46	0.25	0.14		0.30	0.17	0.17
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	266	481		850	850	723	361	435		281	592	265
v/s Ratio Prot	0.04	c0.13		0.57	0.37		0.06	0.17		c0.17	0.04	
v/s Ratio Perm	0.01			c0.05		0.19	0.09			c0.22		0.01
v/c Ratio	0.32	0.95		1.29	0.81	0.42	0.61	1.26dr		1.31	0.24	0.06
Uniform Delay, d1	52.5	59.5		43.6	32.8	25.5	45.3	60.0		43.4	50.6	49.0
Progression Factor	1.00	1.00		0.41	0.42	0.17	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.7	29.4		130.6	0.8	0.2	3.1	119.7		162.5	0.2	0.1
Delay (s)	53.2	88.9		148.4	14.4	4.6	48.4	179.7		205.9	50.8	49.1
Level of Service	D	F		F	B	A	D	F		F	D	D
Approach Delay (s)		83.6			73.8			158.9			145.1	
Approach LOS		F			E			F			F	

Intersection Summary

HCM Average Control Delay	107.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	139.2%	ICU Level of Service	H
Analysis Period (min)	15		
dr Defacto Right Lane. Recode with 1 though lane as a right lane.			
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

39: Bright Star Connector & Bright Star Rd

2014 Build PM
8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	245	36	268	227	53	486
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	266	39	291	247	58	528
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1058	415			538	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1058	415			538	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	94			94	
cM capacity (veh/h)	235	638			1030	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1		
Volume Total	266	39	538	586		
Volume Left	266	0	0	58		
Volume Right	0	39	247	0		
cSH	235	638	1700	1030		
Volume to Capacity	1.13	0.06	0.32	0.06		
Queue Length 95th (ft)	304	5	0	4		
Control Delay (s)	143.8	11.0	0.0	1.5		
Lane LOS	F	B		A		
Approach Delay (s)	126.8		0.0	1.5		
Approach LOS	F					
Intersection Summary						
Average Delay			27.7			
Intersection Capacity Utilization			80.1%		ICU Level of Service	D
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

112: West Strickland St & Bankhead Hwy RR Crossing

2014 Build PM

8/20/2009

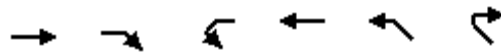
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	18	319	28	20	1	524	1	44	1	1	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	347	30	22	1	570	1	48	1	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1179	1191	1	1524	1167	25	1			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1179	1191	1	1524	1167	25	1			49		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	84	68	28	83	100	65			100		
cM capacity (veh/h)	106	121	1083	42	125	1051	1622			1558		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	366	53	618	2								
Volume Left	0	30	570	1								
Volume Right	347	1	48	0								
cSH	761	59	1622	1558								
Volume to Capacity	0.48	0.90	0.35	0.00								
Queue Length 95th (ft)	66	102	40	0								
Control Delay (s)	14.0	199.9	8.0	3.7								
Lane LOS	B	F	A	A								
Approach Delay (s)	14.0	199.9	8.0	3.7								
Approach LOS	B	F										
Intersection Summary												
Average Delay			19.9									
Intersection Capacity Utilization			71.2%		ICU Level of Service				C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

1: Bankhead Hwy US78 & John West Rd

2014 Build SAT (PM)

8/20/2009



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑	↗		↖	↘	
Volume (veh/h)	302	195	6	371	205	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	328	212	7	403	223	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			540		745	328
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			540		745	328
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		41	99
cM capacity (veh/h)			1028		379	713
Direction, Lane #	EB 1	EB 2	WB 1	NW 1		
Volume Total	328	212	410	229		
Volume Left	0	0	7	223		
Volume Right	0	212	0	7		
cSH	1700	1700	1028	384		
Volume to Capacity	0.19	0.12	0.01	0.60		
Queue Length 95th (ft)	0	0	0	93		
Control Delay (s)	0.0	0.0	0.2	27.3		
Lane LOS			A	D		
Approach Delay (s)	0.0		0.2	27.3		
Approach LOS				D		
Intersection Summary						
Average Delay			5.4			
Intersection Capacity Utilization			42.7%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
2: Bankhead Hwy US 78 & Bill Arp Rd Hwy 5

2014 Build SAT (PM)

8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	315	66	276	407	87	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.89	
Flt Protected	1.00	1.00	0.95	1.00	0.99	
Satd. Flow (prot)	1863	1583	1770	1863	1648	
Flt Permitted	1.00	1.00	0.33	1.00	0.99	
Satd. Flow (perm)	1863	1583	606	1863	1648	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	342	72	300	442	95	340
RTOR Reduction (vph)	0	50	0	0	161	0
Lane Group Flow (vph)	342	22	300	442	274	0
Turn Type		Perm	pm+pt			
Protected Phases	6		5	2	4	
Permitted Phases		6	2			
Actuated Green, G (s)	20.1	20.1	39.1	39.1	15.1	
Effective Green, g (s)	20.1	20.1	39.1	39.1	15.1	
Actuated g/C Ratio	0.30	0.30	0.59	0.59	0.23	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	
Lane Grp Cap (vph)	566	481	587	1100	376	
v/s Ratio Prot	c0.18		c0.10	0.24	c0.17	
v/s Ratio Perm		0.01	0.20			
v/c Ratio	0.60	0.05	0.51	0.40	0.73	
Uniform Delay, d1	19.7	16.3	7.9	7.3	23.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.7	0.1	0.3	0.5	5.9	
Delay (s)	22.3	16.4	8.2	7.8	29.6	
Level of Service	C	B	A	A	C	
Approach Delay (s)	21.3			8.0	29.6	
Approach LOS	C			A	C	
Intersection Summary						
HCM Average Control Delay			17.3		HCM Level of Service	B
HCM Volume to Capacity ratio			0.63			
Actuated Cycle Length (s)			66.2		Sum of lost time (s)	18.0
Intersection Capacity Utilization			71.0%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Bankhead Hwy US78 & Rose Ave

2014 Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	297	29	137	354	52	39	197	192	74	212	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.94			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1770	1838		1770	1827			1742			1815	
Flt Permitted	0.51	1.00		0.30	1.00			0.94			0.75	
Satd. Flow (perm)	944	1838		555	1827			1653			1383	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	323	32	149	385	57	42	214	209	80	230	37
RTOR Reduction (vph)	0	3	0	0	4	0	0	25	0	0	4	0
Lane Group Flow (vph)	18	352	0	149	438	0	0	440	0	0	343	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases	6			5		2	8			4		
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	26.8	26.8		43.0	43.0			33.1			33.1	
Effective Green, g (s)	26.8	26.8		43.0	43.0			33.1			33.1	
Actuated g/C Ratio	0.31	0.31		0.50	0.50			0.38			0.38	
Clearance Time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Vehicle Extension (s)	6.0	6.0		3.0	6.0			3.0			8.0	
Lane Grp Cap (vph)	293	571		433	911			635			531	
v/s Ratio Prot	c0.19			0.04		c0.24						
v/s Ratio Perm	0.02			0.13				c0.27			0.25	
v/c Ratio	0.06	0.62		0.34	0.48			0.69			0.65	
Uniform Delay, d1	20.9	25.3		13.3	14.2			22.3			21.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.2	3.4		0.5	1.1			3.3			5.8	
Delay (s)	21.1	28.8		13.7	15.4			25.5			27.5	
Level of Service	C	C		B	B			C			C	
Approach Delay (s)	28.4			15.0				25.5			27.5	
Approach LOS	C			B				C			C	
Intersection Summary												
HCM Average Control Delay			23.0		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			86.2		Sum of lost time (s)				15.2			
Intersection Capacity Utilization			76.4%		ICU Level of Service				D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Concourse Pkwy & Bill Arp Rd Hwy 5

2014 Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	36	385	702	41	105	419	1754	696	61	1615	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5	6.5	6.5	6.5	6.0	6.5	6.5	6.0	6.5	
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Flt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.97	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1798	1583	1681	1694	1583	1770	3539	1583	1770	3507	
Flt Permitted		0.97	1.00	0.95	0.96	1.00	0.06	1.00	1.00	0.06	1.00	
Satd. Flow (perm)		1798	1583	1681	1694	1583	106	3539	1583	105	3507	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	39	418	763	45	114	455	1907	757	66	1755	112
RTOR Reduction (vph)	0	0	228	0	0	40	0	0	226	0	2	0
Lane Group Flow (vph)	0	142	190	404	404	74	455	1907	531	66	1865	0
Turn Type	Split		Perm	Split		Perm	pm+pt		Perm		pm+pt	
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases			4			3	6		6		2	
Actuated Green, G (s)		15.5	15.5	33.5	33.5	33.5	100.5	100.5	100.5	76.0	75.5	
Effective Green, g (s)		15.5	15.5	33.5	33.5	33.5	100.5	100.5	100.5	76.0	75.5	
Actuated g/C Ratio		0.09	0.09	0.19	0.19	0.19	0.56	0.56	0.56	0.42	0.42	
Clearance Time (s)		6.5	6.5	6.5	6.5	6.5	6.0	6.5	6.5	6.0	6.5	
Vehicle Extension (s)		1.0	1.0	1.0	1.0	1.0	1.0	5.0	5.0	1.0	5.0	
Lane Grp Cap (vph)		155	136	313	315	295	337	1976	884	91	1471	
v/s Ratio Prot		0.08		c0.24	0.24		c0.23	0.54		0.02	c0.53	
v/s Ratio Perm			c0.12			0.05	c0.53		0.34	0.29		
v/c Ratio		0.92	1.39	1.29	1.28	0.25	1.35	0.97	0.60	0.73	1.27	
Uniform Delay, d1		81.6	82.2	73.2	73.2	62.5	63.2	38.1	26.4	79.1	52.2	
Progression Factor		1.00	1.00	1.00	1.00	1.00	0.87	1.06	1.06	1.20	1.23	
Incremental Delay, d2		47.2	215.6	152.7	149.2	0.2	159.4	2.0	0.3	2.2	121.0	
Delay (s)		128.8	297.9	226.0	222.5	62.7	214.6	42.3	28.3	96.7	185.2	
Level of Service		F	F	F	F	E	F	D	C	F	F	
Approach Delay (s)		255.0			204.3			64.0			182.2	
Approach LOS		F			F			E			F	
Intersection Summary												
HCM Average Control Delay		135.1				HCM Level of Service		F				
HCM Volume to Capacity ratio		1.27										
Actuated Cycle Length (s)		180.0				Sum of lost time (s)		19.0				
Intersection Capacity Utilization		114.2%				ICU Level of Service		H				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Bill Arp Rd Hwy 5 & I-20 WB Ramp

2014 Build SAT (PM)

8/20/2009

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	 				 			 			
Volume (vph)	541	0	1199	306	1736	0	0	2010	666	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5	6.5	6.0			6.0	6.0		
Lane Util. Factor	0.97		1.00	1.00	0.95			0.95	1.00		
Frt	1.00		0.85	1.00	1.00			1.00	0.85		
Flt Protected	0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)	3433		1583	1770	3539			3539	1583		
Flt Permitted	0.95		1.00	0.05	1.00			1.00	1.00		
Satd. Flow (perm)	3433		1583	88	3539			3539	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	588	0	1303	333	1887	0	0	2185	724	0	0
RTOR Reduction (vph)	0	0	14	0	0	0	0	0	189	0	0
Lane Group Flow (vph)	588	0	1289	333	1887	0	0	2185	535	0	0
Turn Type	Prot		custom	pm+pt					Perm		
Protected Phases	8			1	6			2			
Permitted Phases			8	6					2		
Actuated Green, G (s)	53.5		53.5	115.0	115.0			78.0	78.0		
Effective Green, g (s)	53.5		53.5	115.0	115.0			78.0	78.0		
Actuated g/C Ratio	0.30		0.30	0.64	0.64			0.43	0.43		
Clearance Time (s)	5.5		5.5	6.5	6.0			6.0	6.0		
Vehicle Extension (s)	3.0		3.0	4.0	5.0			5.0	5.0		
Lane Grp Cap (vph)	1020		471	341	2261			1534	686		
v/s Ratio Prot	0.17			c0.17	0.53			c0.62			
v/s Ratio Perm			c0.81	0.46					0.34		
v/c Ratio	0.58		2.74	0.98	0.83			1.42	0.78		
Uniform Delay, d1	53.6		63.2	69.8	25.1			51.0	43.7		
Progression Factor	1.00		1.00	0.71	0.55			0.87	0.82		
Incremental Delay, d2	0.8		787.5	9.8	0.4			191.3	0.8		
Delay (s)	54.4		850.7	59.3	14.1			235.5	36.4		
Level of Service	D		F	E	B			F	D		
Approach Delay (s)		603.1			20.9			186.0		0.0	
Approach LOS		F			C			F		A	
Intersection Summary											
HCM Average Control Delay			246.1		HCM Level of Service				F		
HCM Volume to Capacity ratio			1.71								
Actuated Cycle Length (s)			180.0		Sum of lost time (s)				11.5		
Intersection Capacity Utilization			142.5%		ICU Level of Service				H		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
7: I-20 EB Off Ramp & Bill Arp Rd Hwy 5

2014 Build SAT (PM)

8/20/2009

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	590	0	397	0	0	0	0	1523	515	966	1598	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.5		5.5					6.0	6.0	5.5	6.0		
Lane Util. Factor	1.00		1.00					0.95	1.00	1.00	0.95		
Frt	1.00		0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1770		1583					3539	1583	1770	3539		
Flt Permitted	0.95		1.00					1.00	1.00	0.05	1.00		
Satd. Flow (perm)	1770		1583					3539	1583	90	3539		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	641	0	432	0	0	0	0	1655	560	1050	1737	0	
RTOR Reduction (vph)	0	0	23	0	0	0	0	0	208	0	0	0	
Lane Group Flow (vph)	641	0	409	0	0	0	0	1655	352	1050	1737	0	
Turn Type	Prot	custom						Perm		pm+pt			
Protected Phases	4							6	5		2		
Permitted Phases			4							6	2		
Actuated Green, G (s)	48.5	48.5								77.0	77.0	120.0	120.0
Effective Green, g (s)	48.5	48.5								77.0	77.0	120.0	120.0
Actuated g/C Ratio	0.27	0.27								0.43	0.43	0.67	0.67
Clearance Time (s)	5.5	5.5								6.0	6.0	5.5	6.0
Vehicle Extension (s)	3.0	3.0								5.0	5.0	3.5	5.0
Lane Grp Cap (vph)	477	427								1514	677	410	2359
v/s Ratio Prot	c0.36									0.47	c0.53		0.49
v/s Ratio Perm			0.26							0.22		c1.17	
v/c Ratio	1.34	0.96								1.09	0.52	2.56	0.74
Uniform Delay, d1	65.8	64.7								51.5	37.9	63.1	19.6
Progression Factor	1.00	1.00								0.73	0.69	1.28	0.32
Incremental Delay, d2	168.3	32.3								43.1	0.3	703.1	0.2
Delay (s)	234.0	97.0								80.7	26.3	784.0	6.5
Level of Service	F	F								F	C	F	A
Approach Delay (s)	178.9				0.0				67.0			299.4	
Approach LOS	F				A				E			F	
Intersection Summary													
HCM Average Control Delay			193.4	HCM Level of Service				F					
HCM Volume to Capacity ratio			2.16										
Actuated Cycle Length (s)			180.0	Sum of lost time (s)				11.0					
Intersection Capacity Utilization			142.5%	ICU Level of Service				H					
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

8: Douglas Blvd & Bill Arp Rd Hwy 5

2014 Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	311	474	86	290	360	658	90	908	151	639	1035	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Flt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3458		1770	1863	1583	1770	3464		1770	3440	
Flt Permitted	0.14	1.00		0.13	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	257	3458		240	1863	1583	1770	3464		1770	3440	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	338	515	93	315	391	715	98	987	164	695	1125	260
RTOR Reduction (vph)	0	8	0	0	0	382	0	7	0	0	11	0
Lane Group Flow (vph)	338	600	0	315	391	333	98	1144	0	695	1374	0
Turn Type	pm+pt			pm+pt		Perm	Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8		8						
Actuated Green, G (s)	52.0	29.0		56.0	31.0	31.0	12.6	50.0		56.0	93.4	
Effective Green, g (s)	52.0	29.0		56.0	31.0	31.0	12.6	50.0		56.0	93.4	
Actuated g/C Ratio	0.29	0.16		0.31	0.17	0.17	0.07	0.28		0.31	0.52	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	4.0	5.0		4.0	5.0	5.0	4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)	268	557		287	321	273	124	962		551	1785	
v/s Ratio Prot	c0.16	0.17		0.15	0.21		0.06	c0.33		c0.39	0.40	
v/s Ratio Perm	0.20			0.19		c0.21						
v/c Ratio	1.26	1.08		1.10	1.22	1.22	0.79	1.19		1.26	0.77	
Uniform Delay, d1	56.7	75.5		57.5	74.5	74.5	82.4	65.0		62.0	34.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.07	0.45	
Incremental Delay, d2	144.0	60.4		81.8	123.1	126.7	29.4	95.5		126.4	2.0	
Delay (s)	200.7	135.9		139.3	197.6	201.2	111.8	160.5		192.8	17.7	
Level of Service	F	F		F	F	F	F	F		F	B	
Approach Delay (s)		159.0			186.5			156.7			76.2	
Approach LOS		F			F			F			E	
Intersection Summary												
HCM Average Control Delay			135.1			HCM Level of Service				F		
HCM Volume to Capacity ratio			1.19									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			118.2%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Stewart Pkwy & Bill Arp Rd Hwy 5

2014 Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	162	147	192	32	160	212	184	890	28	196	898	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.66	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1221	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	160	209	35	174	230	200	967	30	213	976	160
RTOR Reduction (vph)	0	0	151	0	0	202	0	0	11	0	0	76
Lane Group Flow (vph)	176	160	58	35	174	28	200	967	19	213	976	84
Turn Type	Prot		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases			4	8		8			6			2
Actuated Green, G (s)	21.8	49.8	49.8	22.0	22.0	22.0	25.3	84.8	84.8	26.4	86.4	86.4
Effective Green, g (s)	21.8	49.8	49.8	22.0	22.0	22.0	25.3	84.8	84.8	26.4	86.4	86.4
Actuated g/C Ratio	0.12	0.28	0.28	0.12	0.12	0.12	0.14	0.47	0.47	0.15	0.48	0.48
Clearance Time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	214	515	438	149	228	193	249	1667	746	260	1699	760
v/s Ratio Prot	c0.10	0.09			c0.09		0.11	0.27		c0.12	c0.28	
v/s Ratio Perm			0.04	0.03		0.02			0.01			0.05
v/c Ratio	0.82	0.31	0.13	0.23	0.76	0.15	0.80	0.58	0.03	0.82	0.57	0.11
Uniform Delay, d1	77.2	51.5	48.9	71.4	76.5	70.6	74.9	34.6	25.5	74.5	33.6	25.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.9	0.3	0.1	0.8	14.0	0.3	16.9	1.5	0.1	17.9	1.4	0.3
Delay (s)	98.1	51.9	49.0	72.2	90.5	71.0	91.8	36.1	25.5	92.4	35.0	26.0
Level of Service	F	D	D	E	F	E	F	D	C	F	D	C
Approach Delay (s)		65.7			78.8			45.2			43.0	
Approach LOS		E			E			D			D	
Intersection Summary												
HCM Average Control Delay			51.7				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			180.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			73.7%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

11: John West Rd & Bright Star Rd

2014 Build SAT (PM)

8/20/2009



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	108	109	125	443	429	98
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	117	118	136	482	466	107
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				1042		
pX, platoon unblocked						
vC, conflicting volume	1273	520	573			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1273	520	573			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	26	79	86			
cM capacity (veh/h)	160	556	1000			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	236	617	573			
Volume Left	117	136	0			
Volume Right	118	0	107			
cSH	249	1000	1700			
Volume to Capacity	0.95	0.14	0.34			
Queue Length 95th (ft)	216	12	0			
Control Delay (s)	87.2	3.4	0.0			
Lane LOS	F	A				
Approach Delay (s)	87.2	3.4	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		15.9				
Intersection Capacity Utilization		81.4%		ICU Level of Service	D	
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

12: Douglas Blvd & Bright Star Rd

2014 Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1	2	231	7	357	0	166	241	326	225	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frt		0.91			1.00	0.85		1.00	0.85		1.00	
Flt Protected		1.00			0.95	1.00		1.00	1.00		0.97	
Satd. Flow (prot)		1695			1777	1583		1863	1583		1809	
Flt Permitted		1.00			0.95	1.00		1.00	1.00		0.72	
Satd. Flow (perm)		1695			1777	1583		1863	1583		1338	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1	2	251	8	388	0	180	262	354	245	0
RTOR Reduction (vph)	0	2	0	0	0	300	0	0	119	0	0	0
Lane Group Flow (vph)	0	1	0	0	259	88	0	180	143	0	599	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	3	3		4	4			6			2	
Permitted Phases						4	6		6	2		
Actuated Green, G (s)		1.0			19.1	19.1		46.0	46.0		44.6	
Effective Green, g (s)		1.0			19.1	19.1		46.0	46.0		44.6	
Actuated g/C Ratio		0.01			0.23	0.23		0.55	0.55		0.53	
Clearance Time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Vehicle Extension (s)		3.0			3.0	3.0		5.0	5.0		5.0	
Lane Grp Cap (vph)		20			403	359		1017	864		708	
v/s Ratio Prot		c0.00			c0.15			0.10				
v/s Ratio Perm						0.06			0.09		c0.45	
v/c Ratio		0.05			0.64	0.24		0.18	0.17		0.85	
Uniform Delay, d1		41.2			29.5	26.7		9.6	9.6		16.9	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		1.1			3.5	0.4		0.2	0.2		10.1	
Delay (s)		42.2			33.0	27.1		9.8	9.8		27.0	
Level of Service		D			C	C		A	A		C	
Approach Delay (s)		42.2			29.4			9.8			27.0	
Approach LOS		D			C			A			C	
Intersection Summary												
HCM Average Control Delay			23.5			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			84.3			Sum of lost time (s)			19.6			
Intersection Capacity Utilization			75.1%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
13: Cowan Mill Rd & Bright Star Rd

2014 Build SAT (PM)
8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	99	0	51	6	0	0	54	324	3	3	302	100
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	108	0	55	7	0	0	59	352	3	3	328	109
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	163	7	414	440								
Volume Left (vph)	108	7	59	3								
Volume Right (vph)	55	0	3	109								
Hadj (s)	-0.04	0.23	0.06	-0.11								
Departure Headway (s)	5.9	6.6	5.1	4.9								
Degree Utilization, x	0.27	0.01	0.58	0.60								
Capacity (veh/h)	543	431	682	716								
Control Delay (s)	11.1	9.7	14.9	14.8								
Approach Delay (s)	11.1	9.7	14.9	14.8								
Approach LOS	B	A	B	B								
Intersection Summary												
Delay				14.2								
HCM Level of Service				B								
Intersection Capacity Utilization				60.1%	ICU Level of Service	B						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis 14: Central Church Rd & Bright Star Rd

2014 Build SAT (PM)
8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	17	133	241	28	134	237
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	145	262	30	146	258
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	826	277			292	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	826	277			292	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	81			89	
cM capacity (veh/h)	303	762			1269	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	163	292	403			
Volume Left	18	0	146			
Volume Right	145	30	0			
cSH	650	1700	1269			
Volume to Capacity	0.25	0.17	0.11			
Queue Length 95th (ft)	25	0	10			
Control Delay (s)	12.4	0.0	3.7			
Lane LOS	B		A			
Approach Delay (s)	12.4	0.0	3.7			
Approach LOS	B					
Intersection Summary						
Average Delay		4.1				
Intersection Capacity Utilization		53.4%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

15: Douglas Blvd & Arbor Place Mall Drwy

2014 Build SAT (PM)

8/20/2009

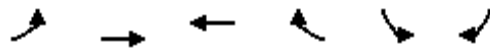
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑↑	↘↗	↗
Volume (vph)	675	680	86	674	693	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.24	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	440	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	734	739	93	733	753	55
RTOR Reduction (vph)	0	450	0	0	0	33
Lane Group Flow (vph)	734	289	93	733	753	22
Turn Type		Perm	pm+pt			Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	30.7	30.7	44.3	44.3	24.2	24.2
Effective Green, g (s)	30.7	30.7	44.3	44.3	24.2	24.2
Actuated g/C Ratio	0.39	0.39	0.56	0.56	0.31	0.31
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1384	619	394	1997	1058	488
v/s Ratio Prot	c0.21		0.03	c0.21	c0.22	
v/s Ratio Perm		0.18	0.11			0.01
v/c Ratio	0.53	0.47	0.24	0.37	0.71	0.04
Uniform Delay, d1	18.4	17.8	9.1	9.4	24.1	19.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.6	0.3	0.1	2.3	0.0
Delay (s)	18.8	18.4	9.4	9.5	26.3	19.1
Level of Service	B	B	A	A	C	B
Approach Delay (s)	18.6			9.5	25.9	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay			18.0	HCM Level of Service		B
HCM Volume to Capacity ratio			0.59			
Actuated Cycle Length (s)			78.5	Sum of lost time (s)		15.0
Intersection Capacity Utilization			55.7%	ICU Level of Service		B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

16: Cedar Mountain Rd & Dorris Rd

2014 Build SAT (PM)

8/20/2009



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	26	98	73	369	315	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4		6.3	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	0.89		0.99	
Flt Protected		0.99	1.00		0.96	
Satd. Flow (prot)		1844	1653		1758	
Flt Permitted		0.86	1.00		0.96	
Satd. Flow (perm)		1593	1653		1758	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	107	79	401	342	38
RTOR Reduction (vph)	0	0	252	0	7	0
Lane Group Flow (vph)	0	135	228	0	373	0
Turn Type	Perm					
Protected Phases		2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		15.0	15.0		13.8	
Effective Green, g (s)		15.0	15.0		13.8	
Actuated g/C Ratio		0.37	0.37		0.34	
Clearance Time (s)		5.4	5.4		6.3	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		590	612		599	
v/s Ratio Prot			c0.14		c0.21	
v/s Ratio Perm		0.08				
v/c Ratio		0.23	0.37		0.62	
Uniform Delay, d1		8.8	9.3		11.2	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.4	0.8		2.0	
Delay (s)		9.2	10.1		13.2	
Level of Service		A	B		B	
Approach Delay (s)		9.2	10.1		13.2	
Approach LOS		A	B		B	
Intersection Summary						
HCM Average Control Delay			11.2		HCM Level of Service	B
HCM Volume to Capacity ratio			0.49			
Actuated Cycle Length (s)			40.5		Sum of lost time (s)	11.7
Intersection Capacity Utilization			57.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

17: Cedar Moutain Rd & S Flat Rock Rd

2014 Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	149	273	10	149	0	297	0	21	0	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			5.5			5.1			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.91			1.00			0.99			0.86	
Flt Protected		1.00			1.00			0.96			1.00	
Satd. Flow (prot)		1700			1857			1764			1611	
Flt Permitted		1.00			0.96			0.74			1.00	
Satd. Flow (perm)		1700			1793			1365			1611	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	162	297	11	162	0	323	0	23	0	0	2
RTOR Reduction (vph)	0	105	0	0	0	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	354	0	0	173	0	0	342	0	0	1	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		17.9			18.2			16.7			16.8	
Effective Green, g (s)		17.9			18.2			16.7			16.8	
Actuated g/C Ratio		0.39			0.40			0.37			0.37	
Clearance Time (s)		5.8			5.5			5.1			5.0	
Vehicle Extension (s)		5.0			5.0			3.0			3.0	
Lane Grp Cap (vph)		669			717			501			595	
v/s Ratio Prot		c0.21									0.00	
v/s Ratio Perm					0.10			c0.25				
v/c Ratio		0.53			0.24			0.68			0.00	
Uniform Delay, d1		10.6			9.1			12.2			9.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.4			0.4			3.8			0.0	
Delay (s)		12.0			9.4			16.0			9.1	
Level of Service		B			A			B			A	
Approach Delay (s)		12.0			9.4			16.0			9.1	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM Average Control Delay			12.9			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			45.5			Sum of lost time (s)			10.9			
Intersection Capacity Utilization			58.1%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
19: W Stewarts Mill Rd & Woodland Dr

2014 Build SAT (PM)
8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	7	295	8	18	320	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	321	9	20	348	18
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	328	28	366			
Volume Left (vph)	0	9	348			
Volume Right (vph)	321	0	18			
Hadj (s)	-0.55	0.10	0.19			
Departure Headway (s)	4.4	5.4	4.9			
Degree Utilization, x	0.40	0.04	0.50			
Capacity (veh/h)	776	603	702			
Control Delay (s)	10.2	8.6	12.8			
Approach Delay (s)	10.2	8.6	12.8			
Approach LOS	B	A	B			
Intersection Summary						
Delay			11.4			
HCM Level of Service			B			
Intersection Capacity Utilization			44.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 20: I-20 WB Off Ramp & Chapel Hill Rd

2014 Build SAT (PM)

8/20/2009

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations								 			 		
Volume (veh/h)	0	0	0	0	0	72	521	622	0	0	774	185	
Sign Control	Stop				Stop				Free				
Grade	0%				0%				0%				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	0	0	0	0	78	566	676	0	0	841	201	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None			None			
Median storage (veh)													
Upstream signal (ft)	662												
pX, platoon unblocked													
vC, conflicting volume	2312	2650	421	2229	2650	338	841						676
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	2312	2650	421	2229	2650	338	841						676
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1						4.1
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2						2.2
p0 queue free %	100	100	100	100	100	88	28						100
cM capacity (veh/h)	7	6	581	10	6	658	790						911
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3						
Volume Total	78	566	338	338	421	421	201						
Volume Left	0	566	0	0	0	0	0						
Volume Right	78	0	0	0	0	0	201						
cSH	658	790	1700	1700	1700	1700	1700						
Volume to Capacity	0.12	0.72	0.20	0.20	0.25	0.25	0.12						
Queue Length 95th (ft)	10	155	0	0	0	0	0						
Control Delay (s)	11.2	20.2	0.0	0.0	0.0	0.0	0.0						
Lane LOS	B	C											
Approach Delay (s)	11.2	9.2	0.0										
Approach LOS	B												
Intersection Summary													
Average Delay	5.2												
Intersection Capacity Utilization	76.5%				ICU Level of Service				D				
Analysis Period (min)	15												

HCM Signalized Intersection Capacity Analysis
21: I-20 EB Off Ramp @ Chapel Hill Rd &

2014 Build SAT (PM)

8/20/2009

											
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations					 			  			
Volume (vph)	112	0	526	0	1025	692	37	1588	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Lane Util. Factor	1.00		1.00		0.95	1.00	1.00	0.91			
Frt	1.00		0.85		1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1770		1583		3539	1583	1770	5085			
Flt Permitted	0.95		1.00		1.00	1.00	0.11	1.00			
Satd. Flow (perm)	1770		1583		3539	1583	209	5085			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	0	572	0	1114	752	40	1726	0	0	0
RTOR Reduction (vph)	0	0	5	0	0	424	0	0	0	0	0
Lane Group Flow (vph)	122	0	567	0	1114	328	40	1726	0	0	0
Turn Type	Prot	custom				Perm	pm+pt				
Protected Phases	4				6		5	2			
Permitted Phases			4			6		2			
Actuated Green, G (s)	47.1		47.1		52.3	52.3	62.4	62.4			
Effective Green, g (s)	47.1		47.1		52.3	52.3	62.4	62.4			
Actuated g/C Ratio	0.39		0.39		0.44	0.44	0.52	0.52			
Clearance Time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Vehicle Extension (s)	3.5		3.5		6.0	6.0	3.5	6.0			
Lane Grp Cap (vph)	695		621		1542	690	175	2644			
v/s Ratio Prot	0.07				c0.31		0.01	c0.34			
v/s Ratio Perm			c0.36			0.21	0.11				
v/c Ratio	0.18		0.91		0.72	0.47	0.23	0.65			
Uniform Delay, d1	23.8		34.5		27.9	24.1	18.9	20.9			
Progression Factor	1.00		1.00		1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.1		18.2		3.0	2.3	0.8	1.3			
Delay (s)	23.9		52.7		30.8	26.4	19.7	22.2			
Level of Service	C		D		C	C	B	C			
Approach Delay (s)		47.6			29.1			22.1		0.0	
Approach LOS		D			C			C		A	
Intersection Summary											
HCM Average Control Delay			29.2		HCM Level of Service			C			
HCM Volume to Capacity ratio			0.82								
Actuated Cycle Length (s)			120.0		Sum of lost time (s)			16.0			
Intersection Capacity Utilization			72.0%		ICU Level of Service			C			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

30: Bill Arp Rd Hwy 5 & Bright Star Rd

2014 Build SAT (PM)

8/20/2009

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Volume (veh/h)	144	506	0	0	389	4	0	0	0	1	0	144		
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	157	550	0	0	423	4	0	0	0	1	0	157		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)												8		
Median type	None			None										
Median storage (veh)														
Upstream signal (ft)														
pX, platoon unblocked														
vC, conflicting volume	423				550				1286	1286	550	1286	1286	423
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	423				550				1286	1286	550	1286	1286	423
tC, single (s)	4.1				4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)														
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	86				100				100	100	100	99	100	75
cM capacity (veh/h)	1136				1020				95	142	535	126	142	631
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1						
Volume Total	157	550	0	0	423	4	0	158						
Volume Left	157	0	0	0	0	0	0	1						
Volume Right	0	0	0	0	0	4	0	157						
cSH	1136	1700	1700	1700	1700	1700	1700	635						
Volume to Capacity	0.14	0.32	0.00	0.00	0.25	0.00	0.00	0.25						
Queue Length 95th (ft)	12	0	0	0	0	0	0	24						
Control Delay (s)	8.7	0.0	0.0	0.0	0.0	0.0	0.0	12.7						
Lane LOS	A							A	B					
Approach Delay (s)	1.9				0.0				0.0	12.7				
Approach LOS							A	B						
Intersection Summary														
Average Delay	2.6													
Intersection Capacity Utilization	43.3%			ICU Level of Service			A							
Analysis Period (min)	15													

HCM Signalized Intersection Capacity Analysis

33: Bill Arp Rd Hwy 5 & Rose Ave

2014 Build SAT (PM)

8/20/2009

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	374	312	212	1241	458	200	210	105	1175	266	163	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.94		1.00	1.00	0.85	1.00	0.86		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3325		1770	1863	1583	1770	3052		1770	3539	1583
Flt Permitted	0.48	1.00		0.14	1.00	1.00	0.53	1.00		0.15	1.00	1.00
Satd. Flow (perm)	896	3325		266	1863	1583	985	3052		281	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	407	339	230	1349	498	217	228	114	1277	289	177	84
RTOR Reduction (vph)	0	66	0	0	0	90	0	640	0	0	0	72
Lane Group Flow (vph)	407	503	0	1349	498	127	228	751	0	289	177	12
Turn Type	pm+pt			pm+pt		Perm	pm+pt			pm+pt		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	57.0	23.0		120.0	81.0	81.0	46.5	28.0		43.5	26.5	26.5
Effective Green, g (s)	57.0	23.0		120.0	81.0	81.0	46.5	28.0		43.5	26.5	26.5
Actuated g/C Ratio	0.32	0.13		0.67	0.45	0.45	0.26	0.16		0.24	0.15	0.15
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	449	425		946	838	712	335	475		209	521	233
v/s Ratio Prot	0.17	0.15		c0.73	0.27		0.07	c0.25		c0.13	0.05	
v/s Ratio Perm	0.12			c0.22		0.08	0.11			0.20		0.01
v/c Ratio	0.91	1.18		1.43	0.59	0.18	0.68	1.44dr		1.38	0.34	0.05
Uniform Delay, d1	57.5	78.5		39.3	37.2	29.6	57.2	76.0		61.6	68.9	66.0
Progression Factor	1.00	1.00		0.66	0.36	0.11	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	21.6	104.0		194.0	1.1	0.2	5.6	271.3		199.2	0.4	0.1
Delay (s)	79.1	182.5		219.9	14.6	3.5	62.8	347.3		260.8	69.3	66.1
Level of Service	E	F		F	B	A	E	F		F	E	E
Approach Delay (s)		139.3			147.6			307.3			169.4	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	198.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	156.6%	ICU Level of Service	H
Analysis Period (min)	15		
dr Defacto Right Lane. Recode with 1 though lane as a right lane.			
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

39: Bright Star Connector & Bright Star Rd

2014 Build SAT (PM)

8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	270	56	256	295	58	258
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	293	61	278	321	63	280
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	845	439			599	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	845	439			599	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	6	90			94	
cM capacity (veh/h)	312	618			978	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1		
Volume Total	293	61	599	343		
Volume Left	293	0	0	63		
Volume Right	0	61	321	0		
cSH	312	618	1700	978		
Volume to Capacity	0.94	0.10	0.35	0.06		
Queue Length 95th (ft)	235	8	0	5		
Control Delay (s)	74.7	11.5	0.0	2.2		
Lane LOS	F	B		A		
Approach Delay (s)	63.8		0.0	2.2		
Approach LOS	F					
Intersection Summary						
Average Delay			18.0			
Intersection Capacity Utilization			73.3%		ICU Level of Service	D
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

112: West Strickland St & Bankhead Hwy RR Crossing

2014 Build SAT (PM)

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	12	275	20	7	0	302	7	17	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	13	299	22	8	0	328	8	18	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	677	683	0	979	673	17	0			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	677	683	0	979	673	17	0			26		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	96	72	84	97	100	80			100		
cM capacity (veh/h)	304	297	1085	136	300	1062	1623			1588		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	312	29	354	0								
Volume Left	0	22	328	0								
Volume Right	299	0	18	0								
cSH	976	158	1623	1700								
Volume to Capacity	0.32	0.19	0.20	0.00								
Queue Length 95th (ft)	35	16	19	0								
Control Delay (s)	10.4	32.9	7.3	0.0								
Lane LOS	B	D	A									
Approach Delay (s)	10.4	32.9	7.3	0.0								
Approach LOS	B	D										
Intersection Summary												
Average Delay			9.8									
Intersection Capacity Utilization			42.7%		ICU Level of Service				A			
Analysis Period (min)			15									

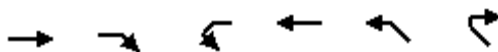
2014 BUILD OPERATIONS WITH IMPROVEMENTS

HCM Signalized Intersection Capacity Analysis

1: Bankhead Hwy US78 & John West Rd

2014 Build AM -With Improvements

8/20/2009



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑	↑		↑	↑	
Volume (vph)	531	149	8	336	105	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.99	
Flt Protected	1.00	1.00		1.00	0.96	
Satd. Flow (prot)	1863	1583		1861	1759	
Flt Permitted	1.00	1.00		0.98	0.96	
Satd. Flow (perm)	1863	1583		1834	1759	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	577	162	9	365	114	12
RTOR Reduction (vph)	0	82	0	0	4	0
Lane Group Flow (vph)	577	80	0	374	122	0
Turn Type		Perm	Perm			
Protected Phases	6			2	8	
Permitted Phases		6	2			
Actuated Green, G (s)	17.8	17.8		17.8	8.3	
Effective Green, g (s)	17.8	17.8		17.8	8.3	
Actuated g/C Ratio	0.49	0.49		0.49	0.23	
Clearance Time (s)	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	919	781		904	404	
v/s Ratio Prot	c0.31				c0.07	
v/s Ratio Perm		0.05		0.20		
v/c Ratio	0.63	0.10		0.41	0.30	
Uniform Delay, d1	6.7	4.9		5.8	11.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.1		0.3	0.4	
Delay (s)	8.1	4.9		6.1	11.9	
Level of Service	A	A		A	B	
Approach Delay (s)	7.4			6.1	11.9	
Approach LOS	A			A	B	

Intersection Summary

HCM Average Control Delay	7.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	36.1	Sum of lost time (s)	10.0
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Bankhead Hwy US 78 & Bill Arp Rd Hwy 5

2014 Build AM -With Improvements

8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	527	118	290	394	73	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.91	
Flt Protected	1.00	1.00	0.95	1.00	0.98	
Satd. Flow (prot)	1863	1583	1770	1863	1669	
Flt Permitted	1.00	1.00	0.20	1.00	0.98	
Satd. Flow (perm)	1863	1583	376	1863	1669	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	573	128	315	428	79	152
RTOR Reduction (vph)	0	75	0	0	81	0
Lane Group Flow (vph)	573	53	315	428	150	0
Turn Type		Perm	pm+pt			
Protected Phases	6		5	2	4	
Permitted Phases		6	2			
Actuated Green, G (s)	29.9	29.9	49.4	49.4	10.8	
Effective Green, g (s)	29.9	29.9	49.4	49.4	10.8	
Actuated g/C Ratio	0.41	0.41	0.68	0.68	0.15	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	
Lane Grp Cap (vph)	772	656	518	1275	250	
v/s Ratio Prot	c0.31		c0.11	0.23	c0.09	
v/s Ratio Perm		0.03	0.30			
v/c Ratio	0.74	0.08	0.61	0.34	0.60	
Uniform Delay, d1	17.9	12.8	8.7	4.7	28.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.6	0.1	1.4	0.3	2.8	
Delay (s)	22.5	12.9	10.1	5.0	31.5	
Level of Service	C	B	B	A	C	
Approach Delay (s)	20.8			7.2	31.5	
Approach LOS	C			A	C	
Intersection Summary						
HCM Average Control Delay			16.2		HCM Level of Service	B
HCM Volume to Capacity ratio			0.69			
Actuated Cycle Length (s)			72.2		Sum of lost time (s)	18.0
Intersection Capacity Utilization			71.5%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Bankhead Hwy US78 & Rose Ave

2014 Build AM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	497	44	91	277	24	17	209	147	107	277	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.95			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1770	1840		1770	1841			1759			1824	
Flt Permitted	0.56	1.00		0.14	1.00			0.97			0.69	
Satd. Flow (perm)	1049	1840		266	1841			1715			1283	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	540	48	99	301	26	18	227	160	116	301	26
RTOR Reduction (vph)	0	2	0	0	3	0	0	19	0	0	2	0
Lane Group Flow (vph)	25	586	0	99	325	0	0	386	0	0	441	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		6		5	2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	43.7	43.7		55.9	55.9			45.8			45.8	
Effective Green, g (s)	43.7	43.7		55.9	55.9			45.8			45.8	
Actuated g/C Ratio	0.39	0.39		0.50	0.50			0.41			0.41	
Clearance Time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Vehicle Extension (s)	6.0	6.0		3.0	6.0			3.0			8.0	
Lane Grp Cap (vph)	410	719		229	921			703			526	
v/s Ratio Prot		c0.32		0.03	c0.18							
v/s Ratio Perm	0.02			0.19				0.23			c0.34	
v/c Ratio	0.06	0.81		0.43	0.35			0.55			0.84	
Uniform Delay, d1	21.2	30.4		20.4	17.0			25.1			29.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.2	8.3		1.3	0.7			0.9			14.0	
Delay (s)	21.4	38.7		21.7	17.6			26.0			43.7	
Level of Service	C	D		C	B			C			D	
Approach Delay (s)		38.0			18.6			26.0			43.7	
Approach LOS		D			B			C			D	
Intersection Summary												
HCM Average Control Delay			32.4			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			111.8			Sum of lost time (s)			15.2			
Intersection Capacity Utilization			93.6%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Concourse Pkwy & Bill Arp Rd Hwy 5

2014 Build AM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	10	92	193	13	42	119	1334	116	35	1021	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5		6.0	6.5		6.0	6.5	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.88		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	3433	1649		1770	5024		1770	5076	
Flt Permitted	0.72	1.00	1.00	0.95	1.00		0.20	1.00		0.11	1.00	
Satd. Flow (perm)	1337	1863	1583	3433	1649		368	5024		207	5076	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	11	100	210	14	46	129	1450	126	38	1110	14
RTOR Reduction (vph)	0	0	94	0	39	0	0	6	0	0	1	0
Lane Group Flow (vph)	11	11	6	210	21	0	129	1570	0	38	1123	0
Turn Type	pm+pt		Perm	Prot			pm+pt			pm+pt		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4				6			2		
Actuated Green, G (s)	9.8	8.4	8.4	11.4	18.4		91.2	80.7		68.9	64.9	
Effective Green, g (s)	9.8	8.4	8.4	11.4	18.4		91.2	80.7		68.9	64.9	
Actuated g/C Ratio	0.08	0.06	0.06	0.09	0.14		0.70	0.62		0.53	0.50	
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5		6.0	6.5		6.0	6.5	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	105	120	102	301	233		472	3119		158	2534	
v/s Ratio Prot	0.00	0.01		c0.06	c0.01		c0.04	c0.31		0.01	0.22	
v/s Ratio Perm	0.01		0.00				0.15			0.12		
v/c Ratio	0.10	0.09	0.06	0.70	0.09		0.27	0.50		0.24	0.44	
Uniform Delay, d1	55.9	57.2	57.1	57.6	48.5		14.4	13.6		27.0	20.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.42	0.34		0.87	0.68	
Incremental Delay, d2	0.2	0.1	0.1	5.6	0.1		0.1	0.5		0.2	0.5	
Delay (s)	56.1	57.3	57.2	63.2	48.6		6.2	5.2		23.6	14.7	
Level of Service	E	E	E	E	D		A	A		C	B	
Approach Delay (s)		57.1			60.0			5.2			15.0	
Approach LOS		E			E			A			B	
Intersection Summary												
HCM Average Control Delay			15.2			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			13.0			
Intersection Capacity Utilization			60.5%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2014 Build AM -With Improvements

5: Concourse Pkwy & Bill Arp Rd Hwy 5

8/20/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	10	10	92	193	13	42	119	1334	116	35	1021	13
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850		0.885			0.988			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	3433	1649	0	1770	5024	0	1770	5075	0
Flt Permitted	0.718			0.950			0.198			0.111		
Satd. Flow (perm)	1337	1863	1583	3433	1649	0	369	5024	0	207	5075	0
Satd. Flow (RTOR)			100		46			15			2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	11	100	210	60	0	129	1576	0	38	1124	0
v/c Ratio	0.06	0.10	0.54	0.70	0.21		0.28	0.49		0.22	0.43	
Control Delay	41.7	59.8	22.0	69.8	19.7		6.0	5.0		12.0	14.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.1		0.0	0.0	
Total Delay	41.7	59.8	22.0	69.8	19.7		6.0	5.1		12.0	14.6	
Queue Length 50th (ft)	8	9	0	90	10		10	99		10	147	
Queue Length 95th (ft)	24	29	57	128	53		18	78		m16	187	
Internal Link Dist (ft)		111			766			473			261	
Turn Bay Length (ft)							450			165		
Base Capacity (vph)	193	222	277	462	354		484	3207		217	2617	
Starvation Cap Reductn	0	0	0	0	0		0	383		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.05	0.36	0.45	0.17		0.27	0.56		0.18	0.43	

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

6: Bill Arp Rd Hwy 5 & I-20 WB Ramp

2014 Build AM -With Improvements

8/20/2009

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	 			 	 			   			
Volume (vph)	337	0	500	128	1055	0	0	1074	215	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		4.0	6.5	6.0			6.0	6.0		
Lane Util. Factor	0.97		1.00	0.97	0.95			0.91	1.00		
Frt	1.00		0.85	1.00	1.00			1.00	0.85		
Flt Protected	0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)	3433		1583	3433	3539			5085	1583		
Flt Permitted	0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (perm)	3433		1583	3433	3539			5085	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	366	0	543	139	1147	0	0	1167	234	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	88	0	0
Lane Group Flow (vph)	366	0	543	139	1147	0	0	1167	146	0	0
Turn Type	Prot		Free	Prot				Perm			
Protected Phases	8			1	6			2			
Permitted Phases			Free						2		
Actuated Green, G (s)	19.2		130.0	11.6	99.3			81.2	81.2		
Effective Green, g (s)	19.2		130.0	11.6	99.3			81.2	81.2		
Actuated g/C Ratio	0.15		1.00	0.09	0.76			0.62	0.62		
Clearance Time (s)	5.5			6.5	6.0			6.0	6.0		
Vehicle Extension (s)	3.0			4.0	5.0			5.0	5.0		
Lane Grp Cap (vph)	507		1583	306	2703			3176	989		
v/s Ratio Prot	c0.11			0.04	c0.32			0.23			
v/s Ratio Perm			c0.34						0.09		
v/c Ratio	0.72		0.34	0.45	0.42			0.37	0.15		
Uniform Delay, d1	52.9		0.0	56.2	5.4			11.9	10.1		
Progression Factor	1.00		1.00	0.91	0.29			0.28	0.38		
Incremental Delay, d2	5.0		0.6	1.4	0.5			0.3	0.3		
Delay (s)	57.9		0.6	52.7	2.0			3.6	4.2		
Level of Service	E		A	D	A			A	A		
Approach Delay (s)		23.7			7.5			3.7		0.0	
Approach LOS		C			A			A		A	
Intersection Summary											
HCM Average Control Delay			10.1		HCM Level of Service				B		
HCM Volume to Capacity ratio			0.47								
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				11.5		
Intersection Capacity Utilization			96.2%		ICU Level of Service				F		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
7: I-20 EB Off Ramp & Bill Arp Rd Hwy 5

2014 Build AM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	392	0	240	0	0	0	0	775	875	586	807	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Lane Util. Factor	0.97		1.00					0.91	1.00	0.97	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433		1583					5085	1583	3433	3539	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433		1583					5085	1583	3433	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	426	0	261	0	0	0	0	842	951	637	877	0
RTOR Reduction (vph)	0	0	164	0	0	0	0	0	284	0	0	0
Lane Group Flow (vph)	426	0	97	0	0	0	0	842	667	637	877	0
Turn Type	Prot		custom						Perm		Prot	
Protected Phases	4							6		5	2	
Permitted Phases			4						6			
Actuated Green, G (s)	21.7		21.7					61.5	61.5	29.8	96.8	
Effective Green, g (s)	21.7		21.7					61.5	61.5	29.8	96.8	
Actuated g/C Ratio	0.17		0.17					0.47	0.47	0.23	0.74	
Clearance Time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Vehicle Extension (s)	3.0		3.0					5.0	5.0	3.5	5.0	
Lane Grp Cap (vph)	573		264					2406	749	787	2635	
v/s Ratio Prot	c0.12							0.17		c0.19	0.25	
v/s Ratio Perm			0.06						c0.42			
v/c Ratio	0.74		0.37					0.35	0.89	0.81	0.33	
Uniform Delay, d1	51.5		48.1					21.6	31.2	47.4	5.6	
Progression Factor	1.00		1.00					0.48	0.47	1.15	1.18	
Incremental Delay, d2	5.2		0.9					0.2	9.6	6.0	0.3	
Delay (s)	56.7		48.9					10.5	24.3	60.6	7.0	
Level of Service	E		D					B	C	E	A	
Approach Delay (s)		53.7			0.0			17.9			29.5	
Approach LOS		D			A			B			C	
Intersection Summary												
HCM Average Control Delay			28.4									
HCM Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			130.0									
Intersection Capacity Utilization			96.2%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Douglas Blvd & Bill Arp Rd Hwy 5

2014 Build AM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	387	106	28	97	146	118	40	1118	167	224	620	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3429		1770	1863	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.29	1.00		0.66	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	541	3429		1229	1863	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	421	115	30	105	159	128	43	1215	182	243	674	215
RTOR Reduction (vph)	0	18	0	0	0	49	0	0	108	0	0	120
Lane Group Flow (vph)	421	127	0	105	159	79	43	1215	74	243	674	95
Turn Type	pm+pt			pm+pt		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4			8		8			6			2
Actuated Green, G (s)	49.4	34.4		25.0	15.0	28.0	8.0	52.6	52.6	13.0	57.6	57.6
Effective Green, g (s)	49.4	34.4		25.0	15.0	28.0	8.0	52.6	52.6	13.0	57.6	57.6
Actuated g/C Ratio	0.38	0.26		0.19	0.12	0.22	0.06	0.40	0.40	0.10	0.44	0.44
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Lane Grp Cap (vph)	484	907		278	215	341	109	1432	641	343	1568	701
v/s Ratio Prot	c0.20	0.04		0.03	0.09	0.02	0.02	c0.34		c0.07	0.19	
v/s Ratio Perm	c0.13			0.04		0.03			0.05			0.06
v/c Ratio	0.87	0.14		0.38	0.74	0.23	0.39	0.85	0.11	0.71	0.43	0.14
Uniform Delay, d1	33.5	36.5		45.1	55.6	42.1	58.7	35.1	24.2	56.7	24.9	21.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.59	0.33
Incremental Delay, d2	15.7	0.1		1.2	15.0	0.5	3.2	6.4	0.4	6.7	0.8	0.4
Delay (s)	49.3	36.6		46.3	70.6	42.6	61.9	41.5	24.5	52.1	15.5	7.4
Level of Service	D	D		D	E	D	E	D	C	D	B	A
Approach Delay (s)		46.0			54.9			40.0			21.8	
Approach LOS		D			D			D			C	
Intersection Summary												
HCM Average Control Delay			36.8				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			89.8%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Stewart Pkwy & Bill Arp Rd Hwy 5

2014 Build AM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	100	49	58	123	206	109	1164	24	145	579	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.69	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1279	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	109	53	63	134	224	118	1265	26	158	629	71
RTOR Reduction (vph)	0	0	40	0	0	201	0	0	11	0	0	35
Lane Group Flow (vph)	128	109	13	63	134	23	118	1265	15	158	629	36
Turn Type	Prot		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases			4	8		8			6			2
Actuated Green, G (s)	12.7	32.0	32.0	13.3	13.3	13.3	13.3	63.4	63.4	15.6	66.2	66.2
Effective Green, g (s)	12.7	32.0	32.0	13.3	13.3	13.3	13.3	63.4	63.4	15.6	66.2	66.2
Actuated g/C Ratio	0.10	0.25	0.25	0.10	0.10	0.10	0.10	0.49	0.49	0.12	0.51	0.51
Clearance Time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	173	459	390	131	191	162	181	1726	772	212	1802	806
v/s Ratio Prot	c0.07	0.06			c0.07		0.07	c0.36		c0.09	c0.18	
v/s Ratio Perm			0.01	0.05		0.01			0.01			0.02
v/c Ratio	0.74	0.24	0.03	0.48	0.70	0.14	0.65	0.73	0.02	0.75	0.35	0.04
Uniform Delay, d1	57.0	39.2	37.2	55.1	56.4	53.1	56.1	26.5	17.2	55.3	19.0	16.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.3	0.3	0.0	2.8	11.1	0.4	8.1	2.8	0.0	13.3	0.5	0.1
Delay (s)	70.3	39.5	37.3	57.9	67.5	53.6	64.3	29.3	17.3	68.5	19.6	16.1
Level of Service	E	D	D	E	E	D	E	C	B	E	B	B
Approach Delay (s)		52.7			58.6			32.0			28.3	
Approach LOS		D			E			C			C	
Intersection Summary												
HCM Average Control Delay			36.7				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			31.0		
Intersection Capacity Utilization			74.1%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: John West Rd & Bright Star Rd

2014 Build AM -With Improvements

8/20/2009



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	63	243	196	305	281	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.89			1.00	0.97	
Flt Protected	0.99			0.98	1.00	
Satd. Flow (prot)	1646			1827	1805	
Flt Permitted	0.99			0.69	1.00	
Satd. Flow (perm)	1646			1284	1805	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	264	213	332	305	90
RTOR Reduction (vph)	157	0	0	0	14	0
Lane Group Flow (vph)	175	0	0	545	381	0
Turn Type	Perm					
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	11.3			28.8	28.8	
Effective Green, g (s)	11.3			28.8	28.8	
Actuated g/C Ratio	0.23			0.57	0.57	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	371			738	1038	
v/s Ratio Prot	c0.11				0.21	
v/s Ratio Perm				c0.42		
v/c Ratio	0.47			0.74	0.37	
Uniform Delay, d1	16.8			7.9	5.7	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.9			3.9	0.2	
Delay (s)	17.8			11.7	6.0	
Level of Service	B			B	A	
Approach Delay (s)	17.8			11.7	6.0	
Approach LOS	B			B	A	
Intersection Summary						
HCM Average Control Delay			11.5		HCM Level of Service	B
HCM Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			50.1		Sum of lost time (s)	10.0
Intersection Capacity Utilization			77.7%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

12: Douglas Blvd & Bright Star Rd

2014 Build AM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	3	99	0	223	2	302	352	320	219	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frt		0.86			1.00	0.85		1.00	0.85		1.00	
Flt Protected		1.00			0.95	1.00		1.00	1.00		0.97	
Satd. Flow (prot)		1611			1770	1583		1862	1583		1808	
Flt Permitted		1.00			0.95	1.00		1.00	1.00		0.62	
Satd. Flow (perm)		1611			1770	1583		1859	1583		1153	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3	108	0	242	2	328	383	348	238	2
RTOR Reduction (vph)	0	3	0	0	0	206	0	0	151	0	0	0
Lane Group Flow (vph)	0	0	0	0	108	36	0	330	232	0	588	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	3	3		4	4			6			2	
Permitted Phases						4	6		6	2		
Actuated Green, G (s)		0.9			11.5	11.5		47.0	47.0		45.6	
Effective Green, g (s)		0.9			11.5	11.5		47.0	47.0		45.6	
Actuated g/C Ratio		0.01			0.15	0.15		0.61	0.61		0.59	
Clearance Time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Vehicle Extension (s)		3.0			3.0	3.0		5.0	5.0		5.0	
Lane Grp Cap (vph)		19			262	235		1126	959		678	
v/s Ratio Prot		c0.00			c0.06							
v/s Ratio Perm						0.02		0.18	0.15		c0.51	
v/c Ratio		0.00			0.41	0.15		0.29	0.24		0.87	
Uniform Delay, d1		37.9			30.0	28.8		7.3	7.1		13.5	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		0.0			1.1	0.3		0.3	0.3		12.3	
Delay (s)		37.9			31.0	29.1		7.6	7.3		25.7	
Level of Service		D			C	C		A	A		C	
Approach Delay (s)		37.9			29.7			7.5			25.7	
Approach LOS		D			C			A			C	
Intersection Summary												
HCM Average Control Delay			18.7			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			77.6			Sum of lost time (s)			19.6			
Intersection Capacity Utilization			72.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

13: Cowan Mill Rd & Bright Star Rd

2014 Build AM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	190	1	56	4	4	8	30	473	3	1	283	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.93			1.00			0.98	
Flt Protected		0.96			0.99			1.00			1.00	
Satd. Flow (prot)		1739			1710			1856			1831	
Flt Permitted		0.76			0.94			0.96			1.00	
Satd. Flow (perm)		1380			1633			1795			1829	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	1	61	4	4	9	33	514	3	1	308	45
RTOR Reduction (vph)	0	12	0	0	6	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	257	0	0	11	0	0	550	0	0	348	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		31.0			31.0			49.0			49.0	
Effective Green, g (s)		31.0			31.0			49.0			49.0	
Actuated g/C Ratio		0.34			0.34			0.54			0.54	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		475			562			977			996	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.01			c0.31			0.19	
v/c Ratio		0.54			0.02			0.56			0.35	
Uniform Delay, d1		23.8			19.5			13.5			11.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		4.4			0.1			2.3			1.0	
Delay (s)		28.2			19.5			15.8			12.5	
Level of Service		C			B			B			B	
Approach Delay (s)		28.2			19.5			15.8			12.5	
Approach LOS		C			B			B			B	
Intersection Summary												
HCM Average Control Delay			17.7			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			76.7%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis 14: Central Church Rd & Bright Star Rd

2014 Build AM -With Improvements

8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	8	99	436	26	146	214
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	108	474	28	159	233
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						920
pX, platoon unblocked	0.93					
vC, conflicting volume	1038	488			502	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1006	488			502	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	81			85	
cM capacity (veh/h)	213	580			1062	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	116	502	391			
Volume Left	9	0	159			
Volume Right	108	28	0			
cSH	513	1700	1062			
Volume to Capacity	0.23	0.30	0.15			
Queue Length 95th (ft)	22	0	13			
Control Delay (s)	14.1	0.0	4.6			
Lane LOS	B		A			
Approach Delay (s)	14.1	0.0	4.6			
Approach LOS	B					
Intersection Summary						
Average Delay		3.4				
Intersection Capacity Utilization		60.4%		ICU Level of Service		B
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

15: Douglas Blvd & Arbor Place Mall Drwy

2014 Build AM -With Improvements

8/20/2009

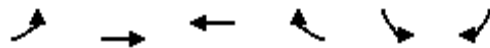
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Volume (vph)	330	94	10	293	86	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.42	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	784	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	359	102	11	318	93	7
RTOR Reduction (vph)	0	53	0	0	0	6
Lane Group Flow (vph)	359	49	11	318	93	1
Turn Type	Perm		pm+pt		Perm	
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	18.1	18.1	24.1	24.1	3.8	3.8
Effective Green, g (s)	18.1	18.1	24.1	24.1	3.8	3.8
Actuated g/C Ratio	0.48	0.48	0.64	0.64	0.10	0.10
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1690	756	525	2250	344	159
v/s Ratio Prot	c0.10		0.00	c0.09	c0.03	
v/s Ratio Perm		0.03	0.01			0.00
v/c Ratio	0.21	0.06	0.02	0.14	0.27	0.00
Uniform Delay, d1	5.8	5.3	2.9	2.8	15.8	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.0	0.0	0.4	0.0
Delay (s)	5.8	5.4	2.9	2.8	16.2	15.4
Level of Service	A	A	A	A	B	B
Approach Delay (s)	5.7			2.8	16.1	
Approach LOS	A			A	B	
Intersection Summary						
HCM Average Control Delay			5.8		HCM Level of Service	A
HCM Volume to Capacity ratio			0.23			
Actuated Cycle Length (s)			37.9		Sum of lost time (s)	15.0
Intersection Capacity Utilization			22.5%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

16: Cedar Mountain Rd & Dorris Rd

2014 Build AM -With Improvements

8/20/2009



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Volume (vph)	47	110	64	184	621	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4		6.3	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	0.90		0.99	
Flt Protected		0.99	1.00		0.96	
Satd. Flow (prot)		1835	1676		1764	
Flt Permitted		0.83	1.00		0.96	
Satd. Flow (perm)		1553	1676		1764	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	120	70	200	675	49
RTOR Reduction (vph)	0	0	140	0	5	0
Lane Group Flow (vph)	0	171	130	0	719	0
Turn Type	Perm					
Protected Phases		2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		17.9	17.9		30.4	
Effective Green, g (s)		17.9	17.9		30.4	
Actuated g/C Ratio		0.30	0.30		0.51	
Clearance Time (s)		5.4	5.4		6.3	
Vehicle Extension (s)		3.0	3.0		5.0	
Lane Grp Cap (vph)		463	500		894	
v/s Ratio Prot			0.08		c0.41	
v/s Ratio Perm		c0.11				
v/c Ratio		0.37	0.26		0.80	
Uniform Delay, d1		16.6	16.0		12.3	
Progression Factor		1.00	0.66		1.00	
Incremental Delay, d2		2.3	1.2		6.0	
Delay (s)		18.9	11.7		18.4	
Level of Service		B	B		B	
Approach Delay (s)		18.9	11.7		18.4	
Approach LOS		B	B		B	
Intersection Summary						
HCM Average Control Delay			16.9		HCM Level of Service	B
HCM Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	11.7
Intersection Capacity Utilization			76.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

17: Cedar Mountain Rd & S Flat Rock Rd

2014 Build AM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	303	402	25	114	59	127	23	18	48	11	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			5.5			5.1			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.92			0.96			0.99			1.00	
Flt Protected		1.00			0.99			0.96			0.96	
Satd. Flow (prot)		1720			1777			1769			1787	
Flt Permitted		1.00			0.89			0.74			0.72	
Satd. Flow (perm)		1718			1591			1352			1343	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	329	437	27	124	64	138	25	20	52	12	1
RTOR Reduction (vph)	0	74	0	0	23	0	0	7	0	0	1	0
Lane Group Flow (vph)	0	696	0	0	192	0	0	176	0	0	64	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		37.7			38.0			11.4			11.5	
Effective Green, g (s)		37.7			38.0			11.4			11.5	
Actuated g/C Ratio		0.63			0.63			0.19			0.19	
Clearance Time (s)		5.8			5.5			5.1			5.0	
Vehicle Extension (s)		5.0			5.0			3.0			3.0	
Lane Grp Cap (vph)		1079			1008			257			257	
v/s Ratio Prot												
v/s Ratio Perm		c0.41			0.12			c0.13			0.05	
v/c Ratio		0.65			0.19			0.68			0.25	
Uniform Delay, d1		7.0			4.6			22.6			20.6	
Progression Factor		0.25			1.00			1.00			1.00	
Incremental Delay, d2		2.1			0.4			7.3			0.5	
Delay (s)		3.9			5.0			29.9			21.1	
Level of Service		A			A			C			C	
Approach Delay (s)		3.9			5.0			29.9			21.1	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay		8.8			HCM Level of Service			A				
HCM Volume to Capacity ratio		0.65										
Actuated Cycle Length (s)		60.0			Sum of lost time (s)			10.9				
Intersection Capacity Utilization		60.3%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
19: W Stewarts Mill Rd & Woodland Dr

2014 Build AM -With Improvements

8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations					 	
Sign Control	Stop			Stop	Stop	
Volume (vph)	3	205	9	29	349	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	223	10	32	379	8
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	226	41	387			
Volume Left (vph)	0	10	379			
Volume Right (vph)	223	0	8			
Hadj (s)	-0.56	0.08	0.22			
Departure Headway (s)	4.4	5.3	4.7			
Degree Utilization, x	0.28	0.06	0.51			
Capacity (veh/h)	759	621	733			
Control Delay (s)	9.1	8.6	12.6			
Approach Delay (s)	9.1	8.6	12.6			
Approach LOS	A	A	B			
Intersection Summary						
Delay			11.1			
HCM Level of Service			B			
Intersection Capacity Utilization			39.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
20: I-20 WB Off Ramp & Chapel Hill Rd

2014 Build AM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	0	120	246	1313	0	0	571	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)						4.0	5.0	5.5			5.5	5.5
Lane Util. Factor						1.00	1.00	0.95			0.95	1.00
Frt						0.86	1.00	1.00			1.00	0.85
Flt Protected						1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)						1611	1770	3539			3539	1583
Flt Permitted						1.00	0.40	1.00			1.00	1.00
Satd. Flow (perm)						1611	740	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	130	267	1427	0	0	621	185
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	27
Lane Group Flow (vph)	0	0	0	0	0	130	267	1427	0	0	621	158
Turn Type						Free	pm+pt					Perm
Protected Phases							1	6			2	
Permitted Phases						Free	6					2
Actuated Green, G (s)						120.0	114.5	120.0			102.7	102.7
Effective Green, g (s)						120.0	114.5	120.0			102.7	102.7
Actuated g/C Ratio						1.00	0.95	1.00			0.86	0.86
Clearance Time (s)							5.0	5.5			5.5	5.5
Vehicle Extension (s)							3.5	6.0			6.0	6.0
Lane Grp Cap (vph)						1611	764	3539			3029	1355
v/s Ratio Prot							0.02	c0.40			0.18	
v/s Ratio Perm						0.08	0.31					0.10
v/c Ratio						0.08	0.35	0.40			0.21	0.12
Uniform Delay, d1						0.0	0.3	0.0			1.5	1.4
Progression Factor						1.00	0.48	1.00			1.00	1.00
Incremental Delay, d2						0.1	0.2	0.2			0.2	0.2
Delay (s)						0.1	0.4	0.2			1.7	1.6
Level of Service						A	A	A			A	A
Approach Delay (s)		0.0			0.1			0.2			1.6	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM Average Control Delay		0.7										
HCM Volume to Capacity ratio		0.40										
Actuated Cycle Length (s)		120.0										
Intersection Capacity Utilization		40.9%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

21: I-20 EB Off Ramp @ Chapel Hill Rd &

2014 Build AM -With Improvements

8/20/2009

											
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations					 			  			
Volume (vph)	499	0	524	0	1088	866	105	738	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Lane Util. Factor	1.00		1.00		0.95	1.00	1.00	0.91			
Frt	1.00		0.85		1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1770		1583		3539	1583	1770	5085			
Flt Permitted	0.95		1.00		1.00	1.00	0.10	1.00			
Satd. Flow (perm)	1770		1583		3539	1583	194	5085			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	542	0	570	0	1183	941	114	802	0	0	0
RTOR Reduction (vph)	0	0	97	0	0	508	0	0	0	0	0
Lane Group Flow (vph)	542	0	473	0	1183	433	114	802	0	0	0
Turn Type	Prot	custom				Perm	pm+pt				
Protected Phases	4				6		5	2			
Permitted Phases			4			6		2			
Actuated Green, G (s)	41.9		41.9		55.0	55.0	67.6	67.6			
Effective Green, g (s)	41.9		41.9		55.0	55.0	67.6	67.6			
Actuated g/C Ratio	0.35		0.35		0.46	0.46	0.56	0.56			
Clearance Time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Vehicle Extension (s)	3.5		3.5		6.0	6.0	3.5	6.0			
Lane Grp Cap (vph)	618		553		1622	726	209	2865			
v/s Ratio Prot	c0.31				c0.33		c0.03	0.16			
v/s Ratio Perm			0.30			0.27	0.27				
v/c Ratio	0.88		0.86		0.73	0.60	0.55	0.28			
Uniform Delay, d1	36.6		36.2		26.4	24.2	18.7	13.6			
Progression Factor	1.00		1.00		1.00	1.00	0.92	0.93			
Incremental Delay, d2	13.5		12.6		2.9	3.6	3.2	0.2			
Delay (s)	50.2		48.8		29.4	27.8	20.4	12.9			
Level of Service	D		D		C	C	C	B			
Approach Delay (s)		49.5			28.7			13.8		0.0	
Approach LOS		D			C			B		A	
Intersection Summary											
HCM Average Control Delay			31.0		HCM Level of Service			C			
HCM Volume to Capacity ratio			0.78								
Actuated Cycle Length (s)			120.0		Sum of lost time (s)			15.5			
Intersection Capacity Utilization			75.6%		ICU Level of Service			D			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

30: Bill Arp Rd Hwy 5 & Bright Star Rd

2014 Build AM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	311	872	0	0	419	7	0	0	0	4	0	155
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	338	948	0	0	455	8	0	0	0	4	0	168
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	455	948			2079			2079	948	2079	2079	455
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	455	948			2079			2079	948	2079	2079	455
tC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.0	3.3
p0 queue free %	69	100			100			100	100	85	100	72
cM capacity (veh/h)	1105	724			22			37	316	30	37	605
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	338	948	0	0	455	8	0	173				
Volume Left	338	0	0	0	0	0	0	4				
Volume Right	0	0	0	0	0	8	0	168				
cSH	1105	1700	1700	1700	1700	1700	1700	620				
Volume to Capacity	0.31	0.56	0.00	0.00	0.27	0.00	0.00	0.28				
Queue Length 95th (ft)	33	0	0	0	0	0	0	28				
Control Delay (s)	9.7	0.0	0.0	0.0	0.0	0.0	0.0	16.5				
Lane LOS	A							A	C			
Approach Delay (s)	2.5	0.0			0.0			16.5				
Approach LOS							A	C				
Intersection Summary												
Average Delay	3.2											
Intersection Capacity Utilization	62.6%			ICU Level of Service				B				
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

33: Bill Arp Rd Hwy 5 & Rose Ave

2014 Build AM -With Improvements

8/20/2009

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	30	542	33	364	381	618	26	20	282	280	26	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	1863	1583	1770	3539	1583
Flt Permitted	0.37	1.00	1.00	0.95	1.00	1.00	0.98	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	690	1863	1583	3433	1863	1583	1817	1863	1583	819	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	589	36	396	414	672	28	22	307	304	28	34
RTOR Reduction (vph)	0	0	19	0	0	281	0	0	0	0	0	28
Lane Group Flow (vph)	33	589	17	396	414	391	28	22	307	304	28	6
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Free	pm+pt		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2			6	4		Free	8		8
Actuated Green, G (s)	62.5	62.5	62.5	19.1	75.6	75.6	8.0	4.1	130.0	33.4	24.5	24.5
Effective Green, g (s)	62.5	62.5	62.5	19.1	75.6	75.6	8.0	4.1	130.0	33.4	24.5	24.5
Actuated g/C Ratio	0.48	0.48	0.48	0.15	0.58	0.58	0.06	0.03	1.00	0.26	0.19	0.19
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	382	896	761	504	1083	921	110	59	1583	388	667	298
v/s Ratio Prot	0.00	c0.32		c0.12	0.22		0.01	0.01		c0.15	0.01	
v/s Ratio Perm	0.04		0.01			0.25	0.01		0.19	c0.05		0.00
v/c Ratio	0.09	0.66	0.02	0.79	0.38	0.42	0.25	0.37	0.19	0.78	0.04	0.02
Uniform Delay, d1	18.9	25.6	17.7	53.5	14.6	15.1	58.2	61.7	0.0	43.5	43.2	43.0
Progression Factor	1.00	1.00	1.00	0.72	0.35	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	3.8	0.1	7.1	0.9	1.3	1.2	3.9	0.3	9.9	0.0	0.0
Delay (s)	19.0	29.4	17.8	45.6	6.0	26.5	59.4	65.6	0.3	53.4	43.2	43.0
Level of Service	B	C	B	D	A	C	E	E	A	D	D	D
Approach Delay (s)		28.2			25.9			8.9			51.6	
Approach LOS		C			C			A			D	
Intersection Summary												
HCM Average Control Delay			27.6			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			73.6%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

39: Bright Star Connector & Bright Star Rd

2014 Build AM -With Improvements

8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	67	5	282	86	7	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.57	1.00
Satd. Flow (perm)	1770	1583	1863	1583	1068	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	5	307	93	8	323
RTOR Reduction (vph)	0	4	0	36	0	0
Lane Group Flow (vph)	73	1	307	57	8	323
Turn Type	Perm		Perm		Perm	
Protected Phases	8		6			2
Permitted Phases		8		6	2	
Actuated Green, G (s)	4.2	4.2	22.1	22.1	22.1	22.1
Effective Green, g (s)	4.2	4.2	22.1	22.1	22.1	22.1
Actuated g/C Ratio	0.12	0.12	0.61	0.61	0.61	0.61
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	205	183	1134	964	650	1134
v/s Ratio Prot	c0.04		0.16			c0.17
v/s Ratio Perm		0.00		0.04	0.01	
v/c Ratio	0.36	0.00	0.27	0.06	0.01	0.28
Uniform Delay, d1	14.8	14.2	3.3	2.9	2.8	3.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.0	0.1	0.0	0.0	0.1
Delay (s)	15.9	14.2	3.5	2.9	2.8	3.5
Level of Service	B	B	A	A	A	A
Approach Delay (s)	15.8		3.3			3.5
Approach LOS	B		A			A
Intersection Summary						
HCM Average Control Delay			4.6	HCM Level of Service		A
HCM Volume to Capacity ratio			0.30			
Actuated Cycle Length (s)			36.3	Sum of lost time (s)		10.0
Intersection Capacity Utilization			29.0%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis

112: West Strickland St & Bankhead Hwy RR Crossing

2014 Build AM -With Improvements

8/20/2009

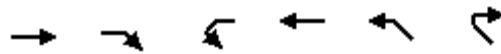
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	29	440	14	10	1	186	2	24	2	1	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	32	478	15	11	1	202	2	26	2	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	432	438	1	919	425	15	1			28		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	432	438	1	919	425	15	1			28		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	93	56	87	98	100	88			100		
cM capacity (veh/h)	474	448	1083	120	456	1064	1622			1585		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	510	27	230	3								
Volume Left	0	15	202	2								
Volume Right	478	1	26	0								
cSH	996	180	1622	1585								
Volume to Capacity	0.51	0.15	0.12	0.00								
Queue Length 95th (ft)	75	13	11	0								
Control Delay (s)	12.3	28.6	6.7	4.9								
Lane LOS	B	D	A	A								
Approach Delay (s)	12.3	28.6	6.7	4.9								
Approach LOS	B	D										
Intersection Summary												
Average Delay			11.2									
Intersection Capacity Utilization			50.7%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1: Bankhead Hwy US78 & John West Rd

2014 Build PM -With Improvements

8/20/2009



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑	↑		↑	↑	
Volume (vph)	346	208	7	726	308	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.99	
Flt Protected	1.00	1.00		1.00	0.96	
Satd. Flow (prot)	1863	1583		1862	1763	
Flt Permitted	1.00	1.00		1.00	0.96	
Satd. Flow (perm)	1863	1583		1856	1763	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	376	226	8	789	335	26
RTOR Reduction (vph)	0	102	0	0	3	0
Lane Group Flow (vph)	376	124	0	797	358	0
Turn Type		Perm	Perm			
Protected Phases	6			2	8	
Permitted Phases		6	2			
Actuated Green, G (s)	34.1	34.1		34.1	18.1	
Effective Green, g (s)	34.1	34.1		34.1	18.1	
Actuated g/C Ratio	0.55	0.55		0.55	0.29	
Clearance Time (s)	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1021	868		1018	513	
v/s Ratio Prot	0.20				c0.20	
v/s Ratio Perm		0.08		c0.43		
v/c Ratio	0.37	0.14		0.78	0.70	
Uniform Delay, d1	8.0	6.9		11.1	19.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.1		4.0	4.1	
Delay (s)	8.2	7.0		15.1	23.7	
Level of Service	A	A		B	C	
Approach Delay (s)	7.7			15.1	23.7	
Approach LOS	A			B	C	

Intersection Summary

HCM Average Control Delay	14.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	62.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Bankhead Hwy US 78 & Bill Arp Rd Hwy 5

2014 Build PM -With Improvements

8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	321	116	241	620	183	424
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.91	
Flt Protected	1.00	1.00	0.95	1.00	0.99	
Satd. Flow (prot)	1863	1583	1770	1863	1662	
Flt Permitted	1.00	1.00	0.28	1.00	0.99	
Satd. Flow (perm)	1863	1583	514	1863	1662	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	349	126	262	674	199	461
RTOR Reduction (vph)	0	92	0	0	99	0
Lane Group Flow (vph)	349	34	262	674	561	0
Turn Type		Perm	pm+pt			
Protected Phases	6		5	2	4	
Permitted Phases		6	2			
Actuated Green, G (s)	21.3	21.3	36.4	36.4	29.6	
Effective Green, g (s)	21.3	21.3	36.4	36.4	29.6	
Actuated g/C Ratio	0.27	0.27	0.47	0.47	0.38	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	
Lane Grp Cap (vph)	509	432	386	869	631	
v/s Ratio Prot	0.19		0.08	c0.36	c0.34	
v/s Ratio Perm		0.02	0.24			
v/c Ratio	0.69	0.08	0.68	0.78	0.89	
Uniform Delay, d1	25.4	21.1	14.6	17.4	22.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.9	0.2	3.7	5.1	14.0	
Delay (s)	30.2	21.2	18.3	22.5	36.6	
Level of Service	C	C	B	C	D	
Approach Delay (s)	27.9			21.3	36.6	
Approach LOS	C			C	D	
Intersection Summary						
HCM Average Control Delay			27.7		HCM Level of Service	C
HCM Volume to Capacity ratio			0.83			
Actuated Cycle Length (s)			78.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			81.5%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Bankhead Hwy US78 & Rose Ave

2014 Build PM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	415	23	102	544	86	69	267	122	43	156	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Flt	1.00	0.99		1.00	0.98			0.96			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1848		1770	1825			1782			1809	
Flt Permitted	0.31	1.00		0.23	1.00			0.91			0.83	
Satd. Flow (perm)	583	1848		430	1825			1631			1509	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	451	25	111	591	93	75	290	133	47	170	38
RTOR Reduction (vph)	0	2	0	0	4	0	0	11	0	0	6	0
Lane Group Flow (vph)	28	474	0	111	680	0	0	487	0	0	249	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		6		5	2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	34.4	34.4		48.5	48.5			34.0			34.0	
Effective Green, g (s)	34.4	34.4		48.5	48.5			34.0			34.0	
Actuated g/C Ratio	0.37	0.37		0.52	0.52			0.37			0.37	
Clearance Time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Vehicle Extension (s)	6.0	6.0		3.0	6.0			3.0			8.0	
Lane Grp Cap (vph)	217	687		355	956			599			554	
v/s Ratio Prot		0.26		0.03	c0.37							
v/s Ratio Perm	0.05			0.13				c0.30			0.17	
v/c Ratio	0.13	0.69		0.31	0.71			0.81			0.45	
Uniform Delay, d1	19.2	24.6		13.9	16.7			26.4			22.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.8	4.5		0.5	3.6			8.2			2.5	
Delay (s)	20.0	29.1		14.4	20.3			34.7			24.7	
Level of Service	B	C		B	C			C			C	
Approach Delay (s)		28.5			19.5			34.7			24.7	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM Average Control Delay			26.1			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			92.6			Sum of lost time (s)			10.1			
Intersection Capacity Utilization			86.9%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Concourse Pkwy & Bill Arp Rd Hwy 5

2014 Build PM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	32	322	571	32	101	347	1960	479	57	1508	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5		6.0	6.5		6.0	6.5	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.89		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	3433	1651		1770	4935		1770	5054	
Flt Permitted	0.66	1.00	1.00	0.95	1.00		0.07	1.00		0.07	1.00	
Satd. Flow (perm)	1238	1863	1583	3433	1651		124	4935		138	5054	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	35	350	621	35	110	377	2130	521	62	1639	71
RTOR Reduction (vph)	0	0	327	0	86	0	0	27	0	0	3	0
Lane Group Flow (vph)	100	35	23	621	59	0	377	2624	0	62	1707	0
Turn Type	pm+pt		Perm	Prot			pm+pt			pm+pt		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4				6			2		
Actuated Green, G (s)	16.4	9.2	9.2	24.5	26.5		86.8	76.5		58.2	53.9	
Effective Green, g (s)	16.4	9.2	9.2	24.5	26.5		86.8	76.5		58.2	53.9	
Actuated g/C Ratio	0.12	0.07	0.07	0.18	0.19		0.62	0.55		0.42	0.38	
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5		6.0	6.5		6.0	6.5	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	172	122	104	601	313		393	2697		107	1946	
v/s Ratio Prot	0.03	0.02		c0.18	0.04		c0.18	c0.53		0.02	0.34	
v/s Ratio Perm	c0.04		0.01				0.41			0.22		
v/c Ratio	0.58	0.29	0.22	1.03	0.19		0.96	0.97		0.58	0.88	
Uniform Delay, d1	57.8	62.3	62.0	57.8	47.7		45.6	30.8		32.7	40.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.31	0.74		0.99	1.08	
Incremental Delay, d2	3.2	0.5	0.4	45.5	0.1		24.0	8.1		3.2	4.1	
Delay (s)	61.0	62.8	62.4	103.3	47.8		83.7	30.9		35.5	47.4	
Level of Service	E	E	E	F	D		F	C		D	D	
Approach Delay (s)		62.1			92.8			37.5			47.0	
Approach LOS		E			F			D			D	
Intersection Summary												
HCM Average Control Delay			49.2			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			25.5			
Intersection Capacity Utilization			96.1%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2014 Build PM -With Improvements

5: Concourse Pkwy & Bill Arp Rd Hwy 5

8/20/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	92	32	322	571	32	101	347	1960	479	57	1508	65
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850		0.886			0.971			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	3433	1650	0	1770	4938	0	1770	5055	0
Flt Permitted	0.665			0.950			0.067			0.074		
Satd. Flow (perm)	1239	1863	1583	3433	1650	0	125	4938	0	138	5055	0
Satd. Flow (RTOR)			350		106			59			5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	35	350	621	145	0	377	2651	0	62	1710	0
v/c Ratio	0.58	0.29	0.81	1.03	0.37		0.96	0.96		0.52	0.88	
Control Delay	54.7	66.9	21.4	101.1	17.6		79.2	28.8		34.2	47.6	
Queue Delay	0.0	0.0	0.1	0.0	0.0		0.0	5.6		0.0	0.6	
Total Delay	54.7	66.9	21.5	101.1	17.6		79.2	34.4		34.2	48.2	
Queue Length 50th (ft)	71	31	0	~312	30		303	387		20	559	
Queue Length 95th (ft)	110	65	101	#434	88		m381	#1042		m39	#798	
Internal Link Dist (ft)		111			766			473			261	
Turn Bay Length (ft)							450			165		
Base Capacity (vph)	173	209	488	601	469		489	2770		120	1951	
Starvation Cap Reductn	0	0	0	0	0		0	115		0	0	
Spillback Cap Reductn	0	0	4	0	0		0	0		0	60	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.58	0.17	0.72	1.03	0.31		0.77	1.00		0.52	0.90	

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

6: Bill Arp Rd Hwy 5 & I-20 WB Ramp

2014 Build PM -With Improvements

8/20/2009

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	 			 	 			   			
Volume (vph)	979	0	1217	284	1527	0	0	1810	583	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		4.0	6.5	6.0			6.0	6.0		
Lane Util. Factor	0.97		1.00	0.97	0.95			0.91	1.00		
Frt	1.00		0.85	1.00	1.00			1.00	0.85		
Flt Protected	0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)	3433		1583	3433	3539			5085	1583		
Flt Permitted	0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (perm)	3433		1583	3433	3539			5085	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1064	0	1323	309	1660	0	0	1967	634	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	332	0	0
Lane Group Flow (vph)	1064	0	1323	309	1660	0	0	1967	302	0	0
Turn Type	Prot		Free	Prot				Perm			
Protected Phases	8			1	6			2			
Permitted Phases			Free						2		
Actuated Green, G (s)	46.7		140.0	15.5	81.8			59.8	59.8		
Effective Green, g (s)	46.7		140.0	15.5	81.8			59.8	59.8		
Actuated g/C Ratio	0.33		1.00	0.11	0.58			0.43	0.43		
Clearance Time (s)	5.5			6.5	6.0			6.0	6.0		
Vehicle Extension (s)	3.0			4.0	5.0			5.0	5.0		
Lane Grp Cap (vph)	1145		1583	380	2068			2172	676		
v/s Ratio Prot	0.31			0.09	0.47			0.39			
v/s Ratio Perm			c0.84						0.19		
v/c Ratio	0.93		0.84	0.81	0.80			0.91	0.45		
Uniform Delay, d1	45.1		0.0	60.8	22.8			37.5	28.4		
Progression Factor	1.00		1.00	0.68	0.26			0.72	1.80		
Incremental Delay, d2	12.8		5.4	9.3	2.3			3.2	0.9		
Delay (s)	57.9		5.4	50.6	8.3			30.3	51.9		
Level of Service	E		A	D	A			C	D		
Approach Delay (s)		28.8			15.0			35.6		0.0	
Approach LOS		C			B			D		A	
Intersection Summary											
HCM Average Control Delay			27.4		HCM Level of Service				C		
HCM Volume to Capacity ratio			0.84								
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				0.0		
Intersection Capacity Utilization			82.5%		ICU Level of Service				E		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
7: I-20 EB Off Ramp & Bill Arp Rd Hwy 5

2014 Build PM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	530	0	208	0	0	0	0	1266	482	818	1961	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Lane Util. Factor	0.97		1.00					0.91	1.00	0.97	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433		1583					5085	1583	3433	3539	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433		1583					5085	1583	3433	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	576	0	226	0	0	0	0	1376	524	889	2132	0
RTOR Reduction (vph)	0	0	14	0	0	0	0	0	280	0	0	0
Lane Group Flow (vph)	576	0	212	0	0	0	0	1376	244	889	2132	0
Turn Type	Prot		custom						Perm		Prot	
Protected Phases	4							6		5	2	
Permitted Phases			4						6			
Actuated Green, G (s)	27.7		27.7					53.7	53.7	41.6	100.8	
Effective Green, g (s)	27.7		27.7					53.7	53.7	41.6	100.8	
Actuated g/C Ratio	0.20		0.20					0.38	0.38	0.30	0.72	
Clearance Time (s)	5.5		5.5					6.0	6.0	5.5	6.0	
Vehicle Extension (s)	3.0		3.0					5.0	5.0	3.5	5.0	
Lane Grp Cap (vph)	679		313					1950	607	1020	2548	
v/s Ratio Prot	c0.17							0.27		0.26	c0.60	
v/s Ratio Perm			0.13						0.15			
v/c Ratio	0.85		0.68					0.71	0.40	0.87	0.84	
Uniform Delay, d1	54.1		52.0					36.5	31.5	46.7	13.8	
Progression Factor	1.00		1.00					0.70	0.27	1.13	0.56	
Incremental Delay, d2	9.7		5.7					0.7	0.6	3.7	1.5	
Delay (s)	63.8		57.8					26.2	9.2	56.6	9.1	
Level of Service	E		E					C	A	E	A	
Approach Delay (s)		62.1			0.0			21.5			23.1	
Approach LOS		E			A			C			C	
Intersection Summary												
HCM Average Control Delay			28.0									
HCM Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			140.0									
Intersection Capacity Utilization			82.5%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Douglas Blvd & Bill Arp Rd Hwy 5

2014 Build PM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	388	307	81	305	238	584	111	780	305	466	1372	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3429		1770	1863	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.17	1.00		0.31	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	316	3429		575	1863	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	422	334	88	332	259	635	121	848	332	507	1491	321
RTOR Reduction (vph)	0	17	0	0	0	30	0	0	240	0	0	95
Lane Group Flow (vph)	422	405	0	332	259	605	121	848	92	507	1491	226
Turn Type	pm+pt			pm+pt		pm+ov		Prot		Perm	Prot	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4			8		8			6			2
Actuated Green, G (s)	51.6	23.6		44.4	20.0	53.0	10.0	39.0	39.0	33.0	62.0	62.0
Effective Green, g (s)	51.6	23.6		44.4	20.0	53.0	10.0	39.0	39.0	33.0	62.0	62.0
Actuated g/C Ratio	0.37	0.17		0.32	0.14	0.38	0.07	0.28	0.28	0.24	0.44	0.44
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Lane Grp Cap (vph)	407	578		391	266	599	126	986	441	809	1567	701
v/s Ratio Prot	c0.21	0.12		0.15	0.14	c0.24	0.07	0.24		0.15	c0.42	
v/s Ratio Perm	c0.17			0.12		0.14			0.06			0.14
v/c Ratio	1.04	0.70		0.85	0.97	1.01	0.96	0.86	0.21	0.63	0.95	0.32
Uniform Delay, d1	42.3	54.9		40.5	59.7	43.5	64.8	47.9	38.7	48.0	37.6	25.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.64	0.41
Incremental Delay, d2	54.5	4.8		16.2	48.0	39.4	67.9	9.7	1.1	1.0	8.8	0.7
Delay (s)	96.8	59.7		56.7	107.8	82.9	132.7	57.6	39.8	42.2	33.0	11.0
Level of Service	F	E		E	F	F	F	E	D	D	C	B
Approach Delay (s)		78.2			81.0			60.1			31.9	
Approach LOS		E			F			E			C	
Intersection Summary												
HCM Average Control Delay			55.8			HCM Level of Service			E			
HCM Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			96.9%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Stewart Pkwy & Bill Arp Rd Hwy 5

2014 Build PM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	204	254	204	50	181	175	172	850	22	331	1255	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.59	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1099	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	222	276	222	54	197	190	187	924	24	360	1364	162
RTOR Reduction (vph)	0	0	156	0	0	167	0	0	14	0	0	83
Lane Group Flow (vph)	222	276	66	54	197	23	187	924	10	360	1364	79
Turn Type	Prot		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases			4	8		8			6			2
Actuated Green, G (s)	19.2	41.8	41.8	16.6	16.6	16.6	16.9	47.7	47.7	31.5	62.8	62.8
Effective Green, g (s)	19.2	41.8	41.8	16.6	16.6	16.6	16.9	47.7	47.7	31.5	62.8	62.8
Actuated g/C Ratio	0.14	0.30	0.30	0.12	0.12	0.12	0.12	0.34	0.34	0.22	0.45	0.45
Clearance Time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	243	556	473	130	221	188	214	1206	539	398	1587	710
v/s Ratio Prot	c0.13	0.15			c0.11		0.11	0.26		c0.20	c0.39	
v/s Ratio Perm			0.04	0.05		0.01			0.01			0.05
v/c Ratio	0.91	0.50	0.14	0.42	0.89	0.12	0.87	0.77	0.02	0.90	0.86	0.11
Uniform Delay, d1	59.6	40.4	35.9	57.2	60.8	55.2	60.5	41.2	30.6	52.8	34.6	22.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	34.7	0.7	0.1	2.1	32.9	0.3	30.1	4.7	0.1	23.3	6.3	0.3
Delay (s)	94.3	41.1	36.1	59.3	93.7	55.5	90.6	45.9	30.7	76.1	40.9	22.7
Level of Service	F	D	D	E	F	E	F	D	C	E	D	C
Approach Delay (s)		56.0			73.0			52.9			46.1	
Approach LOS		E			E			D			D	
Intersection Summary												
HCM Average Control Delay			52.5				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			25.0		
Intersection Capacity Utilization			85.5%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: John West Rd & Bright Star Rd

2014 Build PM -With Improvements

8/20/2009



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	98	161	239	398	622	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.92			1.00	0.98	
Flt Protected	0.98			0.98	1.00	
Satd. Flow (prot)	1675			1828	1826	
Flt Permitted	0.98			0.48	1.00	
Satd. Flow (perm)	1675			891	1826	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	175	260	433	676	117
RTOR Reduction (vph)	66	0	0	0	7	0
Lane Group Flow (vph)	216	0	0	693	786	0
Turn Type	Perm					
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	10.0			70.7	70.7	
Effective Green, g (s)	10.0			70.7	70.7	
Actuated g/C Ratio	0.11			0.78	0.78	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	185			695	1423	
v/s Ratio Prot	c0.13				0.43	
v/s Ratio Perm				c0.78		
v/c Ratio	1.17			1.00	0.55	
Uniform Delay, d1	40.4			9.9	3.9	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	118.8			33.2	0.5	
Delay (s)	159.2			43.1	4.3	
Level of Service	F			D	A	
Approach Delay (s)	159.2			43.1	4.3	
Approach LOS	F			D	A	

Intersection Summary

HCM Average Control Delay	44.2	HCM Level of Service	D
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	90.7	Sum of lost time (s)	10.0
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: Douglas Blvd & Bright Star Rd

2014 Build PM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	2	2	293	4	389	3	237	256	435	350	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frt		0.96			1.00	0.85		1.00	0.85		1.00	
Flt Protected		0.98			0.95	1.00		1.00	1.00		0.97	
Satd. Flow (prot)		1753			1775	1583		1862	1583		1812	
Flt Permitted		0.98			0.95	1.00		0.99	1.00		0.68	
Satd. Flow (perm)		1753			1775	1583		1851	1583		1260	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	2	2	318	4	423	3	258	278	473	380	2
RTOR Reduction (vph)	0	2	0	0	0	351	0	0	94	0	0	0
Lane Group Flow (vph)	0	5	0	0	322	72	0	261	184	0	855	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	3	3		4	4			6			2	
Permitted Phases						4	6		6	2		
Actuated Green, G (s)		1.5			20.3	20.3		78.7	78.7		77.3	
Effective Green, g (s)		1.5			20.3	20.3		78.7	78.7		77.3	
Actuated g/C Ratio		0.01			0.17	0.17		0.66	0.66		0.65	
Clearance Time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Vehicle Extension (s)		3.0			3.0	3.0		5.0	5.0		5.0	
Lane Grp Cap (vph)		22			304	271		1227	1050		821	
v/s Ratio Prot		c0.00			c0.18							
v/s Ratio Perm						0.05		0.14	0.12		c0.68	
v/c Ratio		0.23			1.06	0.27		0.21	0.18		1.04	
Uniform Delay, d1		58.0			49.2	42.7		7.8	7.6		20.7	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		5.2			68.1	0.5		0.2	0.2		42.7	
Delay (s)		63.3			117.3	43.3		8.0	7.8		63.4	
Level of Service		E			F	D		A	A		E	
Approach Delay (s)		63.3			75.3			7.9			63.4	
Approach LOS		E			E			A			E	
Intersection Summary												
HCM Average Control Delay			53.6			HCM Level of Service			D			
HCM Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			118.7			Sum of lost time (s)			19.6			
Intersection Capacity Utilization			93.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

13: Cowan Mill Rd & Bright Star Rd

2014 Build PM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	7	58	7	3	10	68	382	6	12	484	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.96			0.93			1.00			0.97	
Flt Protected		0.97			0.98			0.99			1.00	
Satd. Flow (prot)		1729			1706			1845			1801	
Flt Permitted		0.79			0.90			0.83			0.99	
Satd. Flow (perm)		1411			1565			1539			1784	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	8	63	8	3	11	74	415	7	13	526	171
RTOR Reduction (vph)	0	18	0	0	8	0	0	1	0	0	13	0
Lane Group Flow (vph)	0	185	0	0	14	0	0	495	0	0	697	0
Turn Type	Perm		Perm		Perm		Perm		Perm		Perm	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		23.0			23.0			57.0			57.0	
Effective Green, g (s)		23.0			23.0			57.0			57.0	
Actuated g/C Ratio		0.26			0.26			0.63			0.63	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		361			400			975			1130	
v/s Ratio Prot												
v/s Ratio Perm		c0.13			0.01			0.32			c0.39	
v/c Ratio		0.51			0.03			0.51			0.62	
Uniform Delay, d1		28.7			25.2			8.9			9.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		5.1			0.2			1.9			2.5	
Delay (s)		33.8			25.3			10.8			12.5	
Level of Service		C			C			B			B	
Approach Delay (s)		33.8			25.3			10.8			12.5	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM Average Control Delay		15.1			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.59										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			10.0				
Intersection Capacity Utilization		85.3%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 14: Central Church Rd & Bright Star Rd

2014 Build PM -With Improvements

8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	14	169	289	42	190	393
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	184	314	46	207	427
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						920
pX, platoon unblocked	0.82					
vC, conflicting volume	1177	337			360	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1107	337			360	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	74			83	
cM capacity (veh/h)	158	705			1199	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	199	360	634			
Volume Left	15	0	207			
Volume Right	184	46	0			
cSH	558	1700	1199			
Volume to Capacity	0.36	0.21	0.17			
Queue Length 95th (ft)	40	0	16			
Control Delay (s)	15.0	0.0	4.1			
Lane LOS	B		A			
Approach Delay (s)	15.0	0.0	4.1			
Approach LOS	B					
Intersection Summary						
Average Delay		4.7				
Intersection Capacity Utilization		70.2%		ICU Level of Service		C
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

15: Douglas Blvd & Arbor Place Mall Drwy

2014 Build PM -With Improvements

8/20/2009

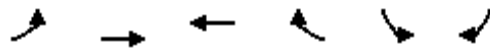
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↑
Volume (vph)	561	415	63	710	583	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.28	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	526	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	610	451	68	772	634	36
RTOR Reduction (vph)	0	295	0	0	0	25
Lane Group Flow (vph)	610	156	68	772	634	11
Turn Type		Perm	pm+pt			Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	20.2	20.2	31.1	31.1	17.3	17.3
Effective Green, g (s)	20.2	20.2	31.1	31.1	17.3	17.3
Actuated g/C Ratio	0.35	0.35	0.53	0.53	0.30	0.30
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1224	548	406	1885	1017	469
v/s Ratio Prot	c0.17		0.02	c0.22	c0.18	
v/s Ratio Perm		0.10	0.07			0.01
v/c Ratio	0.50	0.28	0.17	0.41	0.62	0.02
Uniform Delay, d1	15.1	13.9	7.3	8.2	17.7	14.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.3	0.2	0.1	1.2	0.0
Delay (s)	15.4	14.1	7.5	8.3	18.9	14.6
Level of Service	B	B	A	A	B	B
Approach Delay (s)	14.9			8.2	18.7	
Approach LOS	B			A	B	
Intersection Summary						
HCM Average Control Delay			13.7	HCM Level of Service		B
HCM Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			58.4	Sum of lost time (s)		15.0
Intersection Capacity Utilization			48.8%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

16: Cedar Mountain Rd & Dorris Rd

2014 Build PM -With Improvements

8/20/2009



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Volume (vph)	42	55	112	637	305	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4		5.6	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	0.89		0.98	
Flt Protected		0.98	1.00		0.96	
Satd. Flow (prot)		1823	1649		1749	
Flt Permitted		0.57	1.00		0.96	
Satd. Flow (perm)		1053	1649		1749	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	60	122	692	332	62
RTOR Reduction (vph)	0	0	301	0	11	0
Lane Group Flow (vph)	0	106	513	0	383	0
Turn Type	Perm					
Protected Phases		2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		35.9	35.9		18.1	
Effective Green, g (s)		35.9	35.9		18.1	
Actuated g/C Ratio		0.55	0.55		0.28	
Clearance Time (s)		5.4	5.4		5.6	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		582	911		487	
v/s Ratio Prot			c0.31		c0.22	
v/s Ratio Perm		0.10				
v/c Ratio		0.18	0.56		0.79	
Uniform Delay, d1		7.2	9.5		21.7	
Progression Factor		1.00	1.21		1.00	
Incremental Delay, d2		0.7	1.7		8.2	
Delay (s)		7.9	13.2		29.9	
Level of Service		A	B		C	
Approach Delay (s)		7.9	13.2		29.9	
Approach LOS		A	B		C	
Intersection Summary						
HCM Average Control Delay			17.7		HCM Level of Service	B
HCM Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			65.0		Sum of lost time (s)	11.0
Intersection Capacity Utilization			74.7%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

17: Cedar Mountain Rd & S Flat Rock Rd

2014 Build PM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	119	225	23	254	18	507	7	26	21	7	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			5.5			5.1			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.91			0.99			0.99			0.99	
Flt Protected		1.00			1.00			0.96			0.97	
Satd. Flow (prot)		1699			1840			1768			1785	
Flt Permitted		1.00			0.96			0.71			0.72	
Satd. Flow (perm)		1693			1765			1323			1334	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	129	245	25	276	20	551	8	28	23	8	2
RTOR Reduction (vph)	0	95	0	0	3	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	283	0	0	318	0	0	584	0	0	32	0
Turn Type	Perm		Perm		Perm		Perm		Perm		Perm	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		21.4			21.7			32.7			32.8	
Effective Green, g (s)		21.4			21.7			32.7			32.8	
Actuated g/C Ratio		0.33			0.33			0.50			0.50	
Clearance Time (s)		5.8			5.5			5.1			5.0	
Vehicle Extension (s)		5.0			5.0			3.0			3.0	
Lane Grp Cap (vph)		557			589			666			673	
v/s Ratio Prot												
v/s Ratio Perm		0.17			0.18			0.44			0.02	
v/c Ratio		0.51			0.54			0.88			0.05	
Uniform Delay, d1		17.6			17.6			14.4			8.2	
Progression Factor		0.38			1.00			1.00			1.00	
Incremental Delay, d2		2.5			3.5			12.5			0.0	
Delay (s)		9.3			21.1			26.8			8.2	
Level of Service		A			C			C			A	
Approach Delay (s)		9.3			21.1			26.8			8.2	
Approach LOS		A			C			C			A	
Intersection Summary												
HCM Average Control Delay			19.9			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			10.6			
Intersection Capacity Utilization			74.5%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 19: W Stewarts Mill Rd & Woodland Dr

2014 Build PM -With Improvements
8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	26	409	8	20	389	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	445	9	22	423	18
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	473	30	441			
Volume Left (vph)	0	9	423			
Volume Right (vph)	445	0	18			
Hadj (s)	-0.53	0.09	0.20			
Departure Headway (s)	4.7	6.0	5.4			
Degree Utilization, x	0.62	0.05	0.66			
Capacity (veh/h)	735	537	645			
Control Delay (s)	15.0	9.3	18.0			
Approach Delay (s)	15.0	9.3	18.0			
Approach LOS	C	A	C			
Intersection Summary						
Delay			16.2			
HCM Level of Service			C			
Intersection Capacity Utilization			55.9%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

20: I-20 WB Off Ramp & Chapel Hill Rd

2014 Build PM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (vph)	0	0	0	0	0	211	512	898	0	0	1205	516
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)						4.0	5.0	5.5			5.5	5.5
Lane Util. Factor						1.00	1.00	0.95			0.95	1.00
Frt						0.86	1.00	1.00			1.00	0.85
Flt Protected						1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)						1611	1770	3539			3539	1583
Flt Permitted						1.00	0.14	1.00			1.00	1.00
Satd. Flow (perm)						1611	258	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	229	557	976	0	0	1310	561
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	88
Lane Group Flow (vph)	0	0	0	0	0	229	557	976	0	0	1310	473
Turn Type						Free	pm+pt					Perm
Protected Phases							1	6			2	
Permitted Phases						Free	6					2
Actuated Green, G (s)						120.0	114.5	120.0			75.2	75.2
Effective Green, g (s)						120.0	114.5	120.0			75.2	75.2
Actuated g/C Ratio						1.00	0.95	1.00			0.63	0.63
Clearance Time (s)							5.0	5.5			5.5	5.5
Vehicle Extension (s)							3.5	6.0			6.0	6.0
Lane Grp Cap (vph)						1611	678	3539			2218	992
v/s Ratio Prot							c0.23	0.28			0.37	
v/s Ratio Perm						0.14	c0.55					0.30
v/c Ratio						0.14	0.82	0.28			0.59	0.48
Uniform Delay, d1						0.0	25.2	0.0			13.3	11.9
Progression Factor						1.00	1.20	1.00			1.00	1.00
Incremental Delay, d2						0.2	6.4	0.1			1.2	1.6
Delay (s)						0.2	36.6	0.1			14.4	13.6
Level of Service						A	D	A			B	B
Approach Delay (s)		0.0			0.2			13.4			14.2	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM Average Control Delay			13.0			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			5.0			
Intersection Capacity Utilization			87.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

21: I-20 EB Off Ramp @ Chapel Hill Rd &

2014 Build PM -With Improvements

8/20/2009

											
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	180	0	383	0	1208	601	77	1812	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Lane Util. Factor	1.00		1.00		0.95	1.00	1.00	0.91			
Frt	1.00		0.85		1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1770		1583		3539	1583	1770	5085			
Flt Permitted	0.95		1.00		1.00	1.00	0.10	1.00			
Satd. Flow (perm)	1770		1583		3539	1583	189	5085			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	0	416	0	1313	653	84	1970	0	0	0
RTOR Reduction (vph)	0	0	6	0	0	300	0	0	0	0	0
Lane Group Flow (vph)	196	0	410	0	1313	353	84	1970	0	0	0
Turn Type	Prot		custom			Perm	pm+pt				
Protected Phases	4				6		5	2			
Permitted Phases			4			6		2			
Actuated Green, G (s)	35.8		35.8		63.0	63.0	73.7	73.7			
Effective Green, g (s)	35.8		35.8		63.0	63.0	73.7	73.7			
Actuated g/C Ratio	0.30		0.30		0.52	0.52	0.61	0.61			
Clearance Time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Vehicle Extension (s)	3.5		3.5		6.0	6.0	3.5	6.0			
Lane Grp Cap (vph)	528		472		1858	831	191	3123			
v/s Ratio Prot	0.11				c0.37		0.02	c0.39			
v/s Ratio Perm			c0.26			0.22	0.25				
v/c Ratio	0.37		0.87		0.71	0.42	0.44	0.63			
Uniform Delay, d1	33.2		39.9		21.5	17.4	15.9	14.6			
Progression Factor	1.00		1.00		1.00	1.00	0.87	0.45			
Incremental Delay, d2	0.5		15.8		2.3	1.6	1.8	0.9			
Delay (s)	33.7		55.6		23.8	19.0	15.6	7.4			
Level of Service	C		E		C	B	B	A			
Approach Delay (s)		48.6			22.2			7.8		0.0	
Approach LOS		D			C			A		A	
Intersection Summary											
HCM Average Control Delay			19.3		HCM Level of Service			B			
HCM Volume to Capacity ratio			0.78								
Actuated Cycle Length (s)			120.0		Sum of lost time (s)			16.0			
Intersection Capacity Utilization			67.5%		ICU Level of Service			C			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis 30: Bill Arp Rd Hwy 5 & Bright Star Rd

2014 Build PM -With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	192	552	0	0	857	3	0	0	0	1	0	198
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	209	600	0	0	932	3	0	0	0	1	0	215
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												8
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	932				600				1949	1949	600	1949
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	932				600				1949	1949	600	1949
tC, single (s)	4.1				4.1				7.1	6.5	6.2	7.1
tC, 2 stage (s)												
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5
p0 queue free %	72				100				100	100	100	97
cM capacity (veh/h)	735				977				13	46	501	38
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	209	600	0	0	932	3	0	216				
Volume Left	209	0	0	0	0	0	0	1				
Volume Right	0	0	0	0	0	3	0	215				
cSH	735	1700	1700	1700	1700	1700	1700	325				
Volume to Capacity	0.28	0.35	0.00	0.00	0.55	0.00	0.00	0.67				
Queue Length 95th (ft)	29	0	0	0	0	0	0	112				
Control Delay (s)	11.8	0.0	0.0	0.0	0.0	0.0	0.0	36.1				
Lane LOS	B							A	E			
Approach Delay (s)	3.1				0.0				0.0	36.1		
Approach LOS							A	E				
Intersection Summary												
Average Delay	5.2											
Intersection Capacity Utilization	69.1%			ICU Level of Service				C				
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

33: Bill Arp Rd Hwy 5 & Rose Ave

2014 Build PM -With Improvements

8/20/2009

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	79	309	145	1007	632	542	203	72	1010	339	130	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	1863	1583	1770	3539	1583
Flt Permitted	0.15	1.00	1.00	0.95	1.00	1.00	0.66	1.00	1.00	0.39	1.00	1.00
Satd. Flow (perm)	271	1863	1583	3433	1863	1583	1234	1863	1583	721	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	336	158	1095	687	589	221	78	1098	368	141	95
RTOR Reduction (vph)	0	0	119	0	0	251	0	0	0	0	0	83
Lane Group Flow (vph)	86	336	39	1095	687	338	221	78	1098	368	141	12
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Free	pm+pt		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2			6	4		Free	8		8
Actuated Green, G (s)	34.5	34.5	34.5	48.4	75.9	75.9	27.0	8.2	140.0	42.1	18.3	18.3
Effective Green, g (s)	34.5	34.5	34.5	48.4	75.9	75.9	27.0	8.2	140.0	42.1	18.3	18.3
Actuated g/C Ratio	0.25	0.25	0.25	0.35	0.54	0.54	0.19	0.06	1.00	0.30	0.13	0.13
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	142	459	390	1187	1010	858	310	109	1583	433	463	207
v/s Ratio Prot	0.03	0.18		c0.32	0.37		0.10	0.04		c0.18	0.04	
v/s Ratio Perm	0.12		0.02			0.21	0.04		c0.69	0.08		0.01
v/c Ratio	0.61	0.73	0.10	0.92	0.68	0.39	0.71	0.72	0.69	0.85	0.30	0.06
Uniform Delay, d1	43.8	48.5	40.8	44.0	23.2	18.7	52.1	64.8	0.0	43.4	55.1	53.3
Progression Factor	1.00	1.00	1.00	0.50	0.25	0.01	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.1	9.9	0.5	5.6	1.6	0.6	7.5	19.9	2.5	14.4	0.4	0.1
Delay (s)	51.0	58.4	41.3	27.4	7.3	0.7	59.7	84.7	2.5	57.8	55.5	53.4
Level of Service	D	E	D	C	A	A	E	F	A	E	E	D
Approach Delay (s)		52.6			15.0			16.2			56.6	
Approach LOS		D			B			B			E	
Intersection Summary												
HCM Average Control Delay			24.8			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			85.4%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

39: Bright Star Connector & Bright Star Rd

2014 Build PM -With Improvements

8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	245	36	268	227	53	486
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.58	1.00
Satd. Flow (perm)	1770	1583	1863	1583	1084	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	266	39	291	247	58	528
RTOR Reduction (vph)	0	28	0	130	0	0
Lane Group Flow (vph)	266	11	291	117	58	528
Turn Type	Perm		Perm		Perm	
Protected Phases	8		6			2
Permitted Phases		8		6	2	
Actuated Green, G (s)	12.5	12.5	20.1	20.1	20.1	20.1
Effective Green, g (s)	12.5	12.5	20.1	20.1	20.1	20.1
Actuated g/C Ratio	0.29	0.29	0.47	0.47	0.47	0.47
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	519	464	879	747	511	879
v/s Ratio Prot	c0.15		0.16			c0.28
v/s Ratio Perm		0.01		0.07	0.05	
v/c Ratio	0.51	0.02	0.33	0.16	0.11	0.60
Uniform Delay, d1	12.5	10.7	7.0	6.4	6.3	8.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.0	0.2	0.1	0.1	1.2
Delay (s)	13.4	10.7	7.3	6.5	6.4	9.5
Level of Service	B	B	A	A	A	A
Approach Delay (s)	13.0		6.9			9.2
Approach LOS	B		A			A
Intersection Summary						
HCM Average Control Delay			9.1	HCM Level of Service		A
HCM Volume to Capacity ratio			0.57			
Actuated Cycle Length (s)			42.6	Sum of lost time (s)		10.0
Intersection Capacity Utilization			47.5%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis

112: West Strickland St & Bankhead Hwy RR Crossing

2014 Build PM -With Improvements

8/20/2009

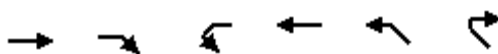
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	18	319	28	20	1	524	1	44	1	1	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	347	30	22	1	570	1	48	1	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1179	1191	1	1524	1167	25	1			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1179	1191	1	1524	1167	25	1			49		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	84	68	28	83	100	65			100		
cM capacity (veh/h)	106	121	1083	42	125	1051	1622			1558		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	366	53	618	2								
Volume Left	0	30	570	1								
Volume Right	347	1	48	0								
cSH	761	59	1622	1558								
Volume to Capacity	0.48	0.90	0.35	0.00								
Queue Length 95th (ft)	66	102	40	0								
Control Delay (s)	14.0	199.9	8.0	3.7								
Lane LOS	B	F	A	A								
Approach Delay (s)	14.0	199.9	8.0	3.7								
Approach LOS	B	F										
Intersection Summary												
Average Delay			19.9									
Intersection Capacity Utilization			71.2%	ICU Level of Service					C			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1: Bankhead Hwy US78 & John West Rd

2014 Build SAT (PM) With Improvements

8/20/2009



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑	↑		↑	↑	
Volume (vph)	302	195	6	371	205	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	1.00	1.00		1.00	0.95	
Satd. Flow (prot)	1863	1583		1861	1769	
Flt Permitted	1.00	1.00		0.99	0.95	
Satd. Flow (perm)	1863	1583		1848	1769	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	328	212	7	403	223	7
RTOR Reduction (vph)	0	127	0	0	1	0
Lane Group Flow (vph)	328	85	0	410	229	0
Turn Type		Perm	Perm			
Protected Phases	6			2	8	
Permitted Phases		6	2			
Actuated Green, G (s)	13.7	13.7		13.7	10.3	
Effective Green, g (s)	13.7	13.7		13.7	10.3	
Actuated g/C Ratio	0.40	0.40		0.40	0.30	
Clearance Time (s)	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	751	638		745	536	
v/s Ratio Prot	0.18				c0.13	
v/s Ratio Perm		0.05		c0.22		
v/c Ratio	0.44	0.13		0.55	0.43	
Uniform Delay, d1	7.4	6.4		7.8	9.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		0.9	0.5	
Delay (s)	7.8	6.5		8.7	10.0	
Level of Service	A	A		A	B	
Approach Delay (s)	7.3			8.7	10.0	
Approach LOS	A			A	B	

Intersection Summary

HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	34.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Bankhead Hwy US 78 & Bill Arp Rd Hwy 5

2014 Build SAT (PM) With Improvements

8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	315	66	276	407	87	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.89	
Flt Protected	1.00	1.00	0.95	1.00	0.99	
Satd. Flow (prot)	1863	1583	1770	1863	1648	
Flt Permitted	1.00	1.00	0.33	1.00	0.99	
Satd. Flow (perm)	1863	1583	606	1863	1648	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	342	72	300	442	95	340
RTOR Reduction (vph)	0	50	0	0	161	0
Lane Group Flow (vph)	342	22	300	442	274	0
Turn Type		Perm	pm+pt			
Protected Phases	6		5	2	4	
Permitted Phases		6	2			
Actuated Green, G (s)	20.1	20.1	39.1	39.1	15.1	
Effective Green, g (s)	20.1	20.1	39.1	39.1	15.1	
Actuated g/C Ratio	0.30	0.30	0.59	0.59	0.23	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	
Lane Grp Cap (vph)	566	481	587	1100	376	
v/s Ratio Prot	c0.18		c0.10	0.24	c0.17	
v/s Ratio Perm		0.01	0.20			
v/c Ratio	0.60	0.05	0.51	0.40	0.73	
Uniform Delay, d1	19.7	16.3	7.9	7.3	23.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.7	0.1	0.3	0.5	5.9	
Delay (s)	22.3	16.4	8.2	7.8	29.6	
Level of Service	C	B	A	A	C	
Approach Delay (s)	21.3			8.0	29.6	
Approach LOS	C			A	C	
Intersection Summary						
HCM Average Control Delay			17.3		HCM Level of Service	B
HCM Volume to Capacity ratio			0.63			
Actuated Cycle Length (s)			66.2		Sum of lost time (s)	18.0
Intersection Capacity Utilization			71.0%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

3: Bankhead Hwy US78 & Rose Ave

2014 Build SAT (PM) With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	297	29	137	354	52	39	197	192	74	212	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.94			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1770	1838		1770	1827			1742			1815	
Flt Permitted	0.51	1.00		0.30	1.00			0.94			0.75	
Satd. Flow (perm)	944	1838		555	1827			1653			1383	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	323	32	149	385	57	42	214	209	80	230	37
RTOR Reduction (vph)	0	3	0	0	4	0	0	25	0	0	4	0
Lane Group Flow (vph)	18	352	0	149	438	0	0	440	0	0	343	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		6		5	2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	26.8	26.8		43.0	43.0			33.1			33.1	
Effective Green, g (s)	26.8	26.8		43.0	43.0			33.1			33.1	
Actuated g/C Ratio	0.31	0.31		0.50	0.50			0.38			0.38	
Clearance Time (s)	5.1	5.1		5.1	5.1			5.0			5.0	
Vehicle Extension (s)	6.0	6.0		3.0	6.0			3.0			8.0	
Lane Grp Cap (vph)	293	571		433	911			635			531	
v/s Ratio Prot		c0.19		0.04	c0.24							
v/s Ratio Perm	0.02			0.13				c0.27			0.25	
v/c Ratio	0.06	0.62		0.34	0.48			0.69			0.65	
Uniform Delay, d1	20.9	25.3		13.3	14.2			22.3			21.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.2	3.4		0.5	1.1			3.3			5.8	
Delay (s)	21.1	28.8		13.7	15.4			25.5			27.5	
Level of Service	C	C		B	B			C			C	
Approach Delay (s)		28.4			15.0			25.5			27.5	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM Average Control Delay			23.0			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			86.2			Sum of lost time (s)			15.2			
Intersection Capacity Utilization			76.4%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Concourse Pkwy & Bill Arp Rd Hwy 5

2014 Build SAT (PM) With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	36	385	702	41	105	419	1754	696	61	1615	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.0	6.5	6.5		6.0	6.5		6.0	6.5	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.89		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	3433	1662		1770	4869		1770	5040	
Flt Permitted	0.69	1.00	1.00	0.95	1.00		0.06	1.00		0.07	1.00	
Satd. Flow (perm)	1285	1863	1583	3433	1662		112	4869		124	5040	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	39	418	763	45	114	455	1907	757	66	1755	112
RTOR Reduction (vph)	0	0	4	0	50	0	0	39	0	0	3	0
Lane Group Flow (vph)	103	39	414	763	109	0	455	2625	0	66	1864	0
Turn Type	pm+pt		pm+ov	Prot			pm+pt			pm+pt		
Protected Phases	7	4	1	3	8		1	6		5	2	
Permitted Phases	4		4				6			2		
Actuated Green, G (s)	16.6	5.8	55.7	38.5	33.5		116.2	105.1		65.4	60.3	
Effective Green, g (s)	16.6	5.8	55.7	38.5	33.5		116.2	105.1		65.4	60.3	
Actuated g/C Ratio	0.09	0.03	0.31	0.21	0.19		0.65	0.58		0.36	0.34	
Clearance Time (s)	6.5	6.5	6.0	6.5	6.5		6.0	6.5		6.0	6.5	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	5.0		1.0	5.0	
Lane Grp Cap (vph)	148	60	490	734	309		532	2843		92	1688	
v/s Ratio Prot	0.04	0.02	c0.23	c0.22	0.07		c0.24	c0.54		0.02	c0.37	
v/s Ratio Perm	0.02		0.03				0.31			0.24		
v/c Ratio	0.70	0.65	0.84	1.04	0.35		0.86	0.92		0.72	1.10	
Uniform Delay, d1	78.7	86.1	58.1	70.8	63.8		53.5	33.8		42.8	59.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.35	0.65		1.09	1.14	
Incremental Delay, d2	10.9	17.5	12.1	43.9	0.3		8.1	4.2		12.3	52.9	
Delay (s)	89.6	103.6	70.2	114.7	64.0		80.4	26.1		58.7	121.2	
Level of Service	F	F	E	F	E		F	C		E	F	
Approach Delay (s)		76.1			105.9			34.0			119.1	
Approach LOS		E			F			C			F	
Intersection Summary												
HCM Average Control Delay			72.9			HCM Level of Service				E		
HCM Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			31.5			
Intersection Capacity Utilization			103.8%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2014 Build SAT (PM) With Improvements

5: Concourse Pkwy & Bill Arp Rd Hwy 5

8/20/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	95	36	385	702	41	105	419	1754	696	61	1615	103
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850		0.892			0.957			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	3433	1662	0	1770	4867	0	1770	5040	0
Flt Permitted	0.690			0.950			0.060			0.066		
Satd. Flow (perm)	1285	1863	1583	3433	1662	0	112	4867	0	123	5040	0
Satd. Flow (RTOR)			6		62			94			4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	39	418	763	159	0	455	2664	0	66	1867	0
v/c Ratio	0.70	0.53	0.77	1.04	0.46		0.85	0.91		0.72	1.08	
Control Delay	79.0	109.5	61.5	110.4	43.8		77.7	24.8		66.9	101.8	
Queue Delay	0.0	0.0	0.2	0.0	0.0		0.2	5.3		0.0	0.0	
Total Delay	79.0	109.5	61.7	110.4	43.8		77.9	30.1		66.9	101.8	
Queue Length 50th (ft)	92	46	436	~498	101		462	435		31	~917	
Queue Length 95th (ft)	149	#96	494	#632	184		504	802		m#69	#1222	
Internal Link Dist (ft)		111			766			473			261	
Turn Bay Length (ft)							450			165		
Base Capacity (vph)	166	76	949	734	364		964	2917		92	1727	
Starvation Cap Reductn	0	0	0	0	0		94	221		0	0	
Spillback Cap Reductn	0	0	105	0	1		0	107		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.62	0.51	0.50	1.04	0.44		0.52	0.99		0.72	1.08	

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

6: Bill Arp Rd Hwy 5 & I-20 WB Ramp

2014 Build SAT (PM) With Improvements

8/20/2009

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	 			 	 			   			
Volume (vph)	541	0	1199	306	1736	0	0	2010	666	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		4.0	6.5	6.0			6.0	6.0		
Lane Util. Factor	0.97		1.00	0.97	0.95			0.91	1.00		
Frt	1.00		0.85	1.00	1.00			1.00	0.85		
Flt Protected	0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (prot)	3433		1583	3433	3539			5085	1583		
Flt Permitted	0.95		1.00	0.95	1.00			1.00	1.00		
Satd. Flow (perm)	3433		1583	3433	3539			5085	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	588	0	1303	333	1887	0	0	2185	724	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	244	0	0
Lane Group Flow (vph)	588	0	1303	333	1887	0	0	2185	480	0	0
Turn Type	Prot		Free	Prot					Perm		
Protected Phases	8			1	6			2			
Permitted Phases			Free						2		
Actuated Green, G (s)	35.7		180.0	22.8	132.8			103.5	103.5		
Effective Green, g (s)	35.7		180.0	22.8	132.8			103.5	103.5		
Actuated g/C Ratio	0.20		1.00	0.13	0.74			0.57	0.57		
Clearance Time (s)	5.5			6.5	6.0			6.0	6.0		
Vehicle Extension (s)	3.0			4.0	5.0			5.0	5.0		
Lane Grp Cap (vph)	681		1583	435	2611			2924	910		
v/s Ratio Prot	0.17			0.10	0.53			0.43			
v/s Ratio Perm			c0.82						0.30		
v/c Ratio	0.86		0.82	0.77	0.72			0.75	0.53		
Uniform Delay, d1	69.8		0.0	76.0	13.3			28.5	23.3		
Progression Factor	1.00		1.00	0.84	0.36			0.78	1.60		
Incremental Delay, d2	11.0		5.0	3.5	0.7			0.5	0.6		
Delay (s)	80.8		5.0	67.3	5.6			22.7	38.0		
Level of Service	F		A	E	A			C	D		
Approach Delay (s)		28.6			14.8			26.5		0.0	
Approach LOS		C			B			C		A	
Intersection Summary											
HCM Average Control Delay			23.4		HCM Level of Service				C		
HCM Volume to Capacity ratio			0.82								
Actuated Cycle Length (s)			180.0		Sum of lost time (s)				0.0		
Intersection Capacity Utilization			90.4%		ICU Level of Service				E		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

7: I-20 EB Off Ramp & Bill Arp Rd Hwy 5

2014 Build SAT (PM) With Improvements

8/20/2009

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	590	0	397	0	0	0	0	1523	515	966	1598	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.5		5.5					6.0	6.0	5.5	6.0		
Lane Util. Factor	0.97		1.00					0.91	1.00	0.97	0.95		
Frt	1.00		0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	3433		1583					5085	1583	3433	3539		
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	3433		1583					5085	1583	3433	3539		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	641	0	432	0	0	0	0	1655	560	1050	1737	0	
RTOR Reduction (vph)	0	0	25	0	0	0	0	0	299	0	0	0	
Lane Group Flow (vph)	641	0	407	0	0	0	0	1655	261	1050	1737	0	
Turn Type	Prot	custom						Perm		Prot			
Protected Phases	4							6	5		2		
Permitted Phases	4									6			
Actuated Green, G (s)	46.4	46.4			60.2						60.2	56.4	122.1
Effective Green, g (s)	46.4	46.4			60.2						60.2	56.4	122.1
Actuated g/C Ratio	0.26	0.26			0.33						0.33	0.31	0.68
Clearance Time (s)	5.5	5.5			6.0						6.0	5.5	6.0
Vehicle Extension (s)	3.0	3.0			5.0						5.0	3.5	5.0
Lane Grp Cap (vph)	885	408			1701						529	1076	2401
v/s Ratio Prot	0.19	c0.33						c0.31		0.49			
v/s Ratio Perm	c0.26			0.16									
v/c Ratio	0.72	1.00			0.97						0.49	0.98	0.72
Uniform Delay, d1	61.0	66.7			59.1						47.8	61.1	18.3
Progression Factor	1.00	1.00			0.74						0.21	1.20	0.98
Incremental Delay, d2	3.0	43.5			9.0						1.4	16.6	1.3
Delay (s)	63.9	110.2			53.0						11.6	90.2	19.3
Level of Service	E	F			D						B	F	B
Approach Delay (s)	82.6		0.0			42.5		46.0					
Approach LOS	F		A			D		D					
Intersection Summary													
HCM Average Control Delay	51.2			HCM Level of Service					D				
HCM Volume to Capacity ratio	0.98												
Actuated Cycle Length (s)	180.0			Sum of lost time (s)					17.0				
Intersection Capacity Utilization	90.4%			ICU Level of Service					E				
Analysis Period (min)	15												
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

8: Douglas Blvd & Bill Arp Rd Hwy 5

2014 Build SAT (PM) With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	311	474	86	290	360	658	90	908	151	639	1035	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Flt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3458		1770	1863	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.11	1.00		0.11	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	205	3458		214	1863	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	338	515	93	315	391	715	98	987	164	695	1125	260
RTOR Reduction (vph)	0	8	0	0	0	23	0	0	97	0	0	79
Lane Group Flow (vph)	338	600	0	315	391	692	98	987	67	695	1125	181
Turn Type	pm+pt			pm+pt		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4			8		8			6			2
Actuated Green, G (s)	65.4	36.4		68.6	38.0	77.0	18.0	54.0	54.0	39.0	75.0	75.0
Effective Green, g (s)	65.4	36.4		68.6	38.0	77.0	18.0	54.0	54.0	39.0	75.0	75.0
Actuated g/C Ratio	0.36	0.20		0.38	0.21	0.43	0.10	0.30	0.30	0.22	0.42	0.42
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Lane Grp Cap (vph)	327	699		346	393	677	177	1062	475	744	1475	660
v/s Ratio Prot	c0.17	0.17		0.15	0.21	c0.22	0.06	c0.28		0.20	0.32	
v/s Ratio Perm	0.21			0.19		0.22			0.04			0.11
v/c Ratio	1.03	0.86		0.91	0.99	1.02	0.55	0.93	0.14	0.93	0.76	0.27
Uniform Delay, d1	58.9	69.3		54.5	70.9	51.5	77.2	61.1	46.0	69.2	44.9	34.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.02	0.84	0.66
Incremental Delay, d2	58.7	11.2		27.5	43.9	40.1	4.6	15.1	0.6	13.0	2.3	0.6
Delay (s)	117.7	80.5		81.9	114.8	91.6	81.7	76.3	46.7	83.8	40.0	23.4
Level of Service	F	F		F	F	F	F	E	D	F	D	C
Approach Delay (s)		93.8			95.9			72.8			52.5	
Approach LOS		F			F			E			D	
Intersection Summary												
HCM Average Control Delay			74.6				HCM Level of Service			E		
HCM Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			180.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			96.2%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Stewart Pkwy & Bill Arp Rd Hwy 5

2014 Build SAT (PM) With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	162	147	192	32	160	212	184	890	28	196	898	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.66	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1221	1863	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	160	209	35	174	230	200	967	30	213	976	160
RTOR Reduction (vph)	0	0	151	0	0	202	0	0	11	0	0	76
Lane Group Flow (vph)	176	160	58	35	174	28	200	967	19	213	976	84
Turn Type	Prot		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases			4	8		8			6			2
Actuated Green, G (s)	21.8	49.8	49.8	22.0	22.0	22.0	25.3	84.8	84.8	26.4	86.4	86.4
Effective Green, g (s)	21.8	49.8	49.8	22.0	22.0	22.0	25.3	84.8	84.8	26.4	86.4	86.4
Actuated g/C Ratio	0.12	0.28	0.28	0.12	0.12	0.12	0.14	0.47	0.47	0.15	0.48	0.48
Clearance Time (s)	7.0	7.0	7.0	6.0	6.0	6.0	5.5	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	214	515	438	149	228	193	249	1667	746	260	1699	760
v/s Ratio Prot	c0.10	0.09			c0.09		0.11	0.27		c0.12	c0.28	
v/s Ratio Perm			0.04	0.03		0.02			0.01			0.05
v/c Ratio	0.82	0.31	0.13	0.23	0.76	0.15	0.80	0.58	0.03	0.82	0.57	0.11
Uniform Delay, d1	77.2	51.5	48.9	71.4	76.5	70.6	74.9	34.6	25.5	74.5	33.6	25.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.9	0.3	0.1	0.8	14.0	0.3	16.9	1.5	0.1	17.9	1.4	0.3
Delay (s)	98.1	51.9	49.0	72.2	90.5	71.0	91.8	36.1	25.5	92.4	35.0	26.0
Level of Service	F	D	D	E	F	E	F	D	C	F	D	C
Approach Delay (s)		65.7			78.8			45.2			43.0	
Approach LOS		E			E			D			D	
Intersection Summary												
HCM Average Control Delay			51.7				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			180.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			73.7%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: John West Rd & Bright Star Rd

2014 Build SAT (PM) With Improvements

8/20/2009



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	108	109	125	443	429	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.93			1.00	0.97	
Flt Protected	0.98			0.99	1.00	
Satd. Flow (prot)	1694			1842	1816	
Flt Permitted	0.98			0.74	1.00	
Satd. Flow (perm)	1694			1386	1816	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	118	136	482	466	107
RTOR Reduction (vph)	39	0	0	0	12	0
Lane Group Flow (vph)	196	0	0	618	561	0
Turn Type	Perm					
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	11.7			33.1	33.1	
Effective Green, g (s)	11.7			33.1	33.1	
Actuated g/C Ratio	0.21			0.60	0.60	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	362			837	1097	
v/s Ratio Prot	c0.12				0.31	
v/s Ratio Perm				c0.45		
v/c Ratio	0.54			0.74	0.51	
Uniform Delay, d1	19.2			7.8	6.2	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.6			3.4	0.4	
Delay (s)	20.8			11.2	6.6	
Level of Service	C			B	A	
Approach Delay (s)	20.8			11.2	6.6	
Approach LOS	C			B	A	

Intersection Summary

HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	54.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: Douglas Blvd & Bright Star Rd

2014 Build SAT (PM) With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1	2	231	7	357	0	166	241	326	225	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Lane Util. Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Frt		0.91			1.00	0.85		1.00	0.85		1.00	
Flt Protected		1.00			0.95	1.00		1.00	1.00		0.97	
Satd. Flow (prot)		1695			1777	1583		1863	1583		1809	
Flt Permitted		1.00			0.95	1.00		1.00	1.00		0.72	
Satd. Flow (perm)		1695			1777	1583		1863	1583		1338	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1	2	251	8	388	0	180	262	354	245	0
RTOR Reduction (vph)	0	2	0	0	0	300	0	0	119	0	0	0
Lane Group Flow (vph)	0	1	0	0	259	88	0	180	143	0	599	0
Turn Type	Split			Split		Perm	Perm		Perm	Perm		
Protected Phases	3	3		4	4			6			2	
Permitted Phases						4	6		6	2		
Actuated Green, G (s)		1.0			19.1	19.1		46.0	46.0		44.6	
Effective Green, g (s)		1.0			19.1	19.1		46.0	46.0		44.6	
Actuated g/C Ratio		0.01			0.23	0.23		0.55	0.55		0.53	
Clearance Time (s)		6.3			6.7	6.7		5.2	5.2		6.6	
Vehicle Extension (s)		3.0			3.0	3.0		5.0	5.0		5.0	
Lane Grp Cap (vph)		20			403	359		1017	864		708	
v/s Ratio Prot		c0.00			c0.15			0.10				
v/s Ratio Perm						0.06			0.09		c0.45	
v/c Ratio		0.05			0.64	0.24		0.18	0.17		0.85	
Uniform Delay, d1		41.2			29.5	26.7		9.6	9.6		16.9	
Progression Factor		1.00			1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		1.1			3.5	0.4		0.2	0.2		10.1	
Delay (s)		42.2			33.0	27.1		9.8	9.8		27.0	
Level of Service		D			C	C		A	A		C	
Approach Delay (s)		42.2			29.4			9.8			27.0	
Approach LOS		D			C			A			C	
Intersection Summary												
HCM Average Control Delay			23.5			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			84.3			Sum of lost time (s)			19.6			
Intersection Capacity Utilization			75.1%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

13: Cowan Mill Rd & Bright Star Rd

2014 Build SAT (PM) With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	0	51	6	0	0	54	324	3	3	302	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.95			1.00			1.00			0.97	
Flt Protected		0.97			0.95			0.99			1.00	
Satd. Flow (prot)		1721			1770			1848			1800	
Flt Permitted		0.80			0.66			0.89			1.00	
Satd. Flow (perm)		1424			1238			1659			1797	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	0	55	7	0	0	59	352	3	3	328	109
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	142	0	0	7	0	0	414	0	0	427	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		28.0			28.0			52.0			52.0	
Effective Green, g (s)		28.0			28.0			52.0			52.0	
Actuated g/C Ratio		0.31			0.31			0.58			0.58	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		443			385			959			1038	
v/s Ratio Prot												
v/s Ratio Perm		c0.10			0.01			c0.25			0.24	
v/c Ratio		0.32			0.02			0.43			0.41	
Uniform Delay, d1		23.7			21.5			10.7			10.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.9			0.1			1.4			1.2	
Delay (s)		25.6			21.6			12.1			11.7	
Level of Service		C			C			B			B	
Approach Delay (s)		25.6			21.6			12.1			11.7	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM Average Control Delay		14.2			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.39										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			10.0				
Intersection Capacity Utilization		62.6%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 14: Central Church Rd & Bright Star Rd

2014 Build SAT (PM) With Improvements

8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	17	133	241	28	134	237
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	145	262	30	146	258
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						920
pX, platoon unblocked	0.94					
vC, conflicting volume	826	277			292	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	784	277			292	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	81			89	
cM capacity (veh/h)	302	762			1269	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	163	292	403			
Volume Left	18	0	146			
Volume Right	145	30	0			
cSH	649	1700	1269			
Volume to Capacity	0.25	0.17	0.11			
Queue Length 95th (ft)	25	0	10			
Control Delay (s)	12.4	0.0	3.7			
Lane LOS	B		A			
Approach Delay (s)	12.4	0.0	3.7			
Approach LOS	B					
Intersection Summary						
Average Delay		4.1				
Intersection Capacity Utilization		53.4%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis 15: Douglas Blvd & Arbor Place Mall Drwy

2014 Build SAT (PM) With Improvements

8/20/2009

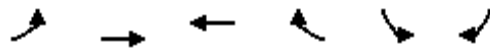
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Volume (vph)	675	680	86	674	693	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.24	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	440	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	734	739	93	733	753	55
RTOR Reduction (vph)	0	450	0	0	0	33
Lane Group Flow (vph)	734	289	93	733	753	22
Turn Type	Perm		pm+pt		Perm	
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	30.7	30.7	44.3	44.3	24.2	24.2
Effective Green, g (s)	30.7	30.7	44.3	44.3	24.2	24.2
Actuated g/C Ratio	0.39	0.39	0.56	0.56	0.31	0.31
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1384	619	394	1997	1058	488
v/s Ratio Prot	c0.21		0.03	c0.21	c0.22	
v/s Ratio Perm		0.18	0.11			0.01
v/c Ratio	0.53	0.47	0.24	0.37	0.71	0.04
Uniform Delay, d1	18.4	17.8	9.1	9.4	24.1	19.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.6	0.3	0.1	2.3	0.0
Delay (s)	18.8	18.4	9.4	9.5	26.3	19.1
Level of Service	B	B	A	A	C	B
Approach Delay (s)	18.6			9.5	25.9	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay			18.0		HCM Level of Service	B
HCM Volume to Capacity ratio			0.59			
Actuated Cycle Length (s)			78.5		Sum of lost time (s)	15.0
Intersection Capacity Utilization			55.7%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

16: Cedar Mountain Rd & Dorris Rd

2014 Build SAT (PM) With Improvements

8/20/2009



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Volume (vph)	26	98	73	369	315	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4		6.3	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	0.89		0.99	
Flt Protected		0.99	1.00		0.96	
Satd. Flow (prot)		1844	1653		1758	
Flt Permitted		0.86	1.00		0.96	
Satd. Flow (perm)		1593	1653		1758	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	107	79	401	342	38
RTOR Reduction (vph)	0	0	252	0	7	0
Lane Group Flow (vph)	0	135	228	0	373	0
Turn Type	Perm					
Protected Phases		2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		15.0	15.0		13.8	
Effective Green, g (s)		15.0	15.0		13.8	
Actuated g/C Ratio		0.37	0.37		0.34	
Clearance Time (s)		5.4	5.4		6.3	
Vehicle Extension (s)		5.0	5.0		3.0	
Lane Grp Cap (vph)		590	612		599	
v/s Ratio Prot			c0.14		c0.21	
v/s Ratio Perm		0.08				
v/c Ratio		0.23	0.37		0.62	
Uniform Delay, d1		8.8	9.3		11.2	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.4	0.8		2.0	
Delay (s)		9.2	10.1		13.2	
Level of Service		A	B		B	
Approach Delay (s)		9.2	10.1		13.2	
Approach LOS		A	B		B	
Intersection Summary						
HCM Average Control Delay			11.2		HCM Level of Service	B
HCM Volume to Capacity ratio			0.49			
Actuated Cycle Length (s)			40.5		Sum of lost time (s)	11.7
Intersection Capacity Utilization			57.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

17: Cedar Mountain Rd & S Flat Rock Rd

2014 Build SAT (PM) With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	149	273	10	149	0	297	0	21	0	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			5.5			5.1			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.91			1.00			0.99			0.86	
Flt Protected		1.00			1.00			0.96			1.00	
Satd. Flow (prot)		1700			1857			1764			1611	
Flt Permitted		1.00			0.96			0.74			1.00	
Satd. Flow (perm)		1700			1793			1365			1611	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	162	297	11	162	0	323	0	23	0	0	2
RTOR Reduction (vph)	0	105	0	0	0	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	354	0	0	173	0	0	342	0	0	1	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	2			6			4			8		
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	17.9			18.2			16.7			16.8		
Effective Green, g (s)	17.9			18.2			16.7			16.8		
Actuated g/C Ratio	0.39			0.40			0.37			0.37		
Clearance Time (s)	5.8			5.5			5.1			5.0		
Vehicle Extension (s)	5.0			5.0			3.0			3.0		
Lane Grp Cap (vph)	669			717			501			595		
v/s Ratio Prot	c0.21									0.00		
v/s Ratio Perm				0.10			c0.25					
v/c Ratio	0.53			0.24			0.68			0.00		
Uniform Delay, d1	10.6			9.1			12.2			9.1		
Progression Factor	1.00			1.00			1.00			1.00		
Incremental Delay, d2	1.4			0.4			3.8			0.0		
Delay (s)	12.0			9.4			16.0			9.1		
Level of Service	B			A			B			A		
Approach Delay (s)	12.0			9.4			16.0			9.1		
Approach LOS	B			A			B			A		
Intersection Summary												
HCM Average Control Delay			12.9		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			45.5		Sum of lost time (s)				10.9			
Intersection Capacity Utilization			58.1%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 19: W Stewarts Mill Rd & Woodland Dr

2014 Build SAT (PM) With Improvements

8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	7	295	8	18	320	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	321	9	20	348	18
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	328	28	366			
Volume Left (vph)	0	9	348			
Volume Right (vph)	321	0	18			
Hadj (s)	-0.55	0.10	0.19			
Departure Headway (s)	4.4	5.4	4.9			
Degree Utilization, x	0.40	0.04	0.50			
Capacity (veh/h)	776	603	702			
Control Delay (s)	10.2	8.6	12.8			
Approach Delay (s)	10.2	8.6	12.8			
Approach LOS	B	A	B			
Intersection Summary						
Delay			11.4			
HCM Level of Service			B			
Intersection Capacity Utilization			44.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis 20: I-20 WB Off Ramp & Chapel Hill Rd

2014 Build SAT (PM) With Improvements

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	0	72	521	622	0	0	774	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)						4.0	5.0	5.5			5.5	5.5
Lane Util. Factor						1.00	1.00	0.95			0.95	1.00
Frt						0.86	1.00	1.00			1.00	0.85
Flt Protected						1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)						1611	1770	3539			3539	1583
Flt Permitted						1.00	0.29	1.00			1.00	1.00
Satd. Flow (perm)						1611	542	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	78	566	676	0	0	841	201
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	62
Lane Group Flow (vph)	0	0	0	0	0	78	566	676	0	0	841	139
Turn Type						Free	pm+pt					Perm
Protected Phases							1	6			2	
Permitted Phases						Free	6					2
Actuated Green, G (s)						120.0	114.5	120.0			82.7	82.7
Effective Green, g (s)						120.0	114.5	120.0			82.7	82.7
Actuated g/C Ratio						1.00	0.95	1.00			0.69	0.69
Clearance Time (s)							5.0	5.5			5.5	5.5
Vehicle Extension (s)							3.5	6.0			6.0	6.0
Lane Grp Cap (vph)						1611	791	3539			2439	1091
v/s Ratio Prot							c0.16	0.19			0.24	
v/s Ratio Perm						0.05	c0.52					0.09
v/c Ratio						0.05	0.72	0.19			0.34	0.13
Uniform Delay, d1						0.0	5.9	0.0			7.6	6.4
Progression Factor						1.00	4.99	1.00			1.00	1.00
Incremental Delay, d2						0.1	2.4	0.1			0.4	0.2
Delay (s)						0.1	31.9	0.1			8.0	6.6
Level of Service						A	C	A			A	A
Approach Delay (s)		0.0			0.1			14.6			7.7	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM Average Control Delay			11.1				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			5.0		
Intersection Capacity Utilization			76.5%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

21: I-20 EB Off Ramp @ Chapel Hill Rd &

2014 Build SAT (PM) With Improvements

8/20/2009

											
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Volume (vph)	112	0	526	0	1025	692	37	1588	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Lane Util. Factor	1.00		1.00		0.95	1.00	1.00	0.91			
Frt	1.00		0.85		1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1770		1583		3539	1583	1770	5085			
Flt Permitted	0.95		1.00		1.00	1.00	0.11	1.00			
Satd. Flow (perm)	1770		1583		3539	1583	209	5085			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	0	572	0	1114	752	40	1726	0	0	0
RTOR Reduction (vph)	0	0	5	0	0	424	0	0	0	0	0
Lane Group Flow (vph)	122	0	567	0	1114	328	40	1726	0	0	0
Turn Type	Prot		custom			Perm	pm+pt				
Protected Phases	4				6		5	2			
Permitted Phases			4			6		2			
Actuated Green, G (s)	47.1		47.1		52.3	52.3	62.4	62.4			
Effective Green, g (s)	47.1		47.1		52.3	52.3	62.4	62.4			
Actuated g/C Ratio	0.39		0.39		0.44	0.44	0.52	0.52			
Clearance Time (s)	5.0		5.0		5.5	5.5	5.0	5.5			
Vehicle Extension (s)	3.5		3.5		6.0	6.0	3.5	6.0			
Lane Grp Cap (vph)	695		621		1542	690	175	2644			
v/s Ratio Prot	0.07				c0.31		0.01	c0.34			
v/s Ratio Perm			c0.36			0.21	0.11				
v/c Ratio	0.18		0.91		0.72	0.47	0.23	0.65			
Uniform Delay, d1	23.8		34.5		27.9	24.1	18.9	20.9			
Progression Factor	1.00		1.00		1.00	1.00	0.78	0.86			
Incremental Delay, d2	0.1		18.2		3.0	2.3	0.8	1.3			
Delay (s)	23.9		52.7		30.8	26.4	15.5	19.3			
Level of Service	C		D		C	C	B	B			
Approach Delay (s)		47.6			29.1			19.2		0.0	
Approach LOS		D			C			B		A	
Intersection Summary											
HCM Average Control Delay			28.0		HCM Level of Service			C			
HCM Volume to Capacity ratio			0.82								
Actuated Cycle Length (s)			120.0		Sum of lost time (s)			16.0			
Intersection Capacity Utilization			72.0%		ICU Level of Service			C			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis 30: Bill Arp Rd Hwy 5 & Bright Star Rd

2014 Build SAT (PM) With Improvements

8/20/2009

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Volume (veh/h)	144	506	0	0	389	4	0	0	0	1	0	144		
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	157	550	0	0	423	4	0	0	0	1	0	157		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)												8		
Median type	None			None										
Median storage veh														
Upstream signal (ft)														
pX, platoon unblocked														
vC, conflicting volume	423				550				1286	1286	550	1286	1286	423
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	423				550				1286	1286	550	1286	1286	423
tC, single (s)	4.1				4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)														
tF (s)	2.2				2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	86				100				100	100	100	99	100	75
cM capacity (veh/h)	1136				1020				95	142	535	126	142	631
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1						
Volume Total	157	550	0	0	423	4	0	158						
Volume Left	157	0	0	0	0	0	0	1						
Volume Right	0	0	0	0	0	4	0	157						
cSH	1136	1700	1700	1700	1700	1700	1700	635						
Volume to Capacity	0.14	0.32	0.00	0.00	0.25	0.00	0.00	0.25						
Queue Length 95th (ft)	12	0	0	0	0	0	0	24						
Control Delay (s)	8.7	0.0	0.0	0.0	0.0	0.0	0.0	12.7						
Lane LOS	A							A	B					
Approach Delay (s)	1.9				0.0				0.0	12.7				
Approach LOS							A	B						
Intersection Summary														
Average Delay				2.6										
Intersection Capacity Utilization				43.3%	ICU Level of Service				A					
Analysis Period (min)				15										

HCM Signalized Intersection Capacity Analysis

33: Bill Arp Rd Hwy 5 & Rose Ave

2014 Build SAT (PM) With Improvements

8/20/2009

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	374	312	212	1241	458	200	210	105	1175	266	163	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	1863	1583	1770	3539	1583
Flt Permitted	0.00	1.00	1.00	0.95	1.00	1.00	0.64	1.00	1.00	0.31	1.00	1.00
Satd. Flow (perm)	0	1863	1583	3433	1863	1583	1192	1863	1583	582	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	407	339	230	1349	498	217	228	114	1277	289	177	84
RTOR Reduction (vph)	0	0	180	0	0	104	0	0	0	0	0	74
Lane Group Flow (vph)	407	339	50	1349	498	113	228	114	1277	289	177	10
Turn Type	pm+pt		Perm	Prot		Perm	pm+pt		Free	pm+pt		Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2			6	4		Free	8		8
Actuated Green, G (s)	39.7	39.4	39.4	76.0	75.7	75.7	37.9	15.5	180.0	49.6	22.2	22.2
Effective Green, g (s)	39.7	39.4	39.4	76.0	75.7	75.7	37.9	15.5	180.0	49.6	22.2	22.2
Actuated g/C Ratio	0.22	0.22	0.22	0.42	0.42	0.42	0.21	0.09	1.00	0.28	0.12	0.12
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	390	408	347	1449	783	666	323	160	1583	352	436	195
v/s Ratio Prot	c0.23	0.18		c0.39	0.27		0.09	0.06		0.13	0.05	
v/s Ratio Perm			0.03			0.07	0.06		c0.81	0.09		0.01
v/c Ratio	1.04	0.83	0.15	0.93	0.64	0.17	0.71	0.71	0.81	0.82	0.41	0.05
Uniform Delay, d1	70.1	67.1	56.7	49.5	41.3	32.5	64.4	80.1	0.0	56.9	72.8	69.6
Progression Factor	1.00	1.00	1.00	0.53	0.48	0.20	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	57.4	17.6	0.9	5.8	1.8	0.3	6.9	13.9	4.5	14.2	0.6	0.1
Delay (s)	127.5	84.7	57.6	32.1	21.6	6.8	71.3	94.0	4.5	71.1	73.4	69.7
Level of Service	F	F	E	C	C	A	E	F	A	E	E	E
Approach Delay (s)		96.2			26.9			20.2			71.6	
Approach LOS		F			C			C			E	
Intersection Summary												
HCM Average Control Delay			42.5			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			5.0			
Intersection Capacity Utilization			88.8%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

39: Bright Star Connector & Bright Star Rd

2014 Build SAT (PM) With Improvements

8/20/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	270	56	256	295	58	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.59	1.00
Satd. Flow (perm)	1770	1583	1863	1583	1097	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	293	61	278	321	63	280
RTOR Reduction (vph)	0	41	0	201	0	0
Lane Group Flow (vph)	293	20	278	120	63	280
Turn Type	Perm		Perm		Perm	
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)	11.5	11.5	12.8	12.8	12.8	12.8
Effective Green, g (s)	11.5	11.5	12.8	12.8	12.8	12.8
Actuated g/C Ratio	0.34	0.34	0.37	0.37	0.37	0.37
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	593	531	695	591	409	695
v/s Ratio Prot	c0.17		0.15			c0.15
v/s Ratio Perm		0.01		0.08	0.06	
v/c Ratio	0.49	0.04	0.40	0.20	0.15	0.40
Uniform Delay, d1	9.1	7.7	7.9	7.3	7.1	7.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.0	0.4	0.2	0.2	0.4
Delay (s)	9.7	7.7	8.3	7.5	7.3	8.3
Level of Service	A	A	A	A	A	A
Approach Delay (s)	9.4		7.8			8.1
Approach LOS	A		A			A
Intersection Summary						
HCM Average Control Delay			8.3	HCM Level of Service		A
HCM Volume to Capacity ratio			0.45			
Actuated Cycle Length (s)			34.3	Sum of lost time (s)		10.0
Intersection Capacity Utilization			47.6%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis 2014 Build SAT (PM) With Improvements

112: West Strickland St & Bankhead Hwy RR Crossing

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	12	275	20	7	0	302	7	17	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	13	299	22	8	0	328	8	18	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	677	683	0	979	673	17	0			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	677	683	0	979	673	17	0			26		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	96	72	84	97	100	80			100		
cM capacity (veh/h)	304	297	1085	136	300	1062	1623			1588		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	312	29	354	0								
Volume Left	0	22	328	0								
Volume Right	299	0	18	0								
cSH	976	158	1623	1700								
Volume to Capacity	0.32	0.19	0.20	0.00								
Queue Length 95th (ft)	35	16	19	0								
Control Delay (s)	10.4	32.9	7.3	0.0								
Lane LOS	B	D	A									
Approach Delay (s)	10.4	32.9	7.3	0.0								
Approach LOS	B	D										
Intersection Summary												
Average Delay			9.8									
Intersection Capacity Utilization			42.7%	ICU Level of Service						A		
Analysis Period (min)			15									

2014 SITE ACCESS OPERATIONS

HCM Unsignalized Intersection Capacity Analysis

41: Bright Star Connector & Drwy 1

2014 Build AM -Bright Star Conn

8/20/2009

							
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations							
Volume (veh/h)	481	14	63	570	0	49	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	523	15	68	620	0	53	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	591						
pX, platoon unblocked							
vC, conflicting volume			538		977	269	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			538		977	269	
tC, single (s)			4.1		6.8	6.9	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			93		100	93	
cM capacity (veh/h)			1026		231	729	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	349	189	68	310	310	0	53
Volume Left	0	0	68	0	0	0	0
Volume Right	0	15	0	0	0	0	53
cSH	1700	1700	1026	1700	1700	1700	729
Volume to Capacity	0.21	0.11	0.07	0.18	0.18	0.00	0.07
Queue Length 95th (ft)	0	0	5	0	0	0	6
Control Delay (s)	0.0	0.0	8.8	0.0	0.0	0.0	10.3
Lane LOS			A			A	B
Approach Delay (s)	0.0		0.9			10.3	
Approach LOS						B	
Intersection Summary							
Average Delay			0.9				
Intersection Capacity Utilization			23.9%	ICU Level of Service		A	
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

44: Bright Star Connector & Drwy 2

2014 Build AM -Bright Star Conn

8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	446	14	63	507	22	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0	5.0	5.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3523		1768	3539	1770	1583
Flt Permitted	1.00		0.43	1.00	0.95	1.00
Satd. Flow (perm)	3523		809	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	485	15	68	551	24	53
RTOR Reduction (vph)	1	0	0	0	0	50
Lane Group Flow (vph)	499	0	68	551	24	3
Confl. Peds. (#/hr)			10			
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	8	
Permitted Phases			2			8
Actuated Green, G (s)	64.1		74.2	74.2	5.8	5.8
Effective Green, g (s)	64.1		74.2	74.2	5.8	5.8
Actuated g/C Ratio	0.71		0.82	0.82	0.06	0.06
Clearance Time (s)	5.0		5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2509		721	2918	114	102
v/s Ratio Prot	c0.14		0.01	c0.16	c0.01	
v/s Ratio Perm			0.07			0.00
v/c Ratio	0.20		0.09	0.19	0.21	0.03
Uniform Delay, d1	4.3		1.6	1.6	39.9	39.5
Progression Factor	0.30		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2		0.1	0.1	0.9	0.1
Delay (s)	1.5		1.7	1.8	40.9	39.6
Level of Service	A		A	A	D	D
Approach Delay (s)	1.5			1.8	40.0	
Approach LOS	A			A	D	
Intersection Summary						
HCM Average Control Delay			4.1		HCM Level of Service	A
HCM Volume to Capacity ratio			0.21			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	15.0
Intersection Capacity Utilization			35.3%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis 47: Bright Star Connector & Drwy 3

2014 Build AM -Bright Star Conn

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	411	14	63	456	10	0	0	49	0	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	447	15	68	496	11	0	0	53	0	0	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		386			454							
pX, platoon unblocked				0.97			0.97	0.97	0.97	0.97	0.97	
vC, conflicting volume	507			462			852	1102	231	919	1104	253
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	507			391			793	1049	154	861	1052	253
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			94			100	100	94	100	100	99
cM capacity (veh/h)	1054			1132			256	206	841	216	205	746
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	2	298	164	68	330	176	53	9				
Volume Left	2	0	0	68	0	0	0	0				
Volume Right	0	0	15	0	0	11	53	9				
cSH	1054	1700	1700	1132	1700	1700	841	746				
Volume to Capacity	0.00	0.18	0.10	0.06	0.19	0.10	0.06	0.01				
Queue Length 95th (ft)	0	0	0	5	0	0	5	1				
Control Delay (s)	8.4	0.0	0.0	8.4	0.0	0.0	9.6	9.9				
Lane LOS	A			A			A	A				
Approach Delay (s)	0.0			1.0			9.6	9.9				
Approach LOS							A	A				
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			29.6%		ICU Level of Service			A				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

50: Bright Star Connector & Drwy 4

2014 Build AM -Bright Star Conn

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	368	14	63	390	11	22	0	49	10	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3520		1770	3525		1770	3008		1770	3008	
Flt Permitted	0.50	1.00		0.51	1.00		0.78	1.00		1.00	1.00	
Satd. Flow (perm)	929	3520		948	3525		1461	3008		1863	3008	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	400	15	68	424	12	24	0	53	11	0	2
RTOR Reduction (vph)	0	2	0	0	1	0	0	50	0	0	2	0
Lane Group Flow (vph)	3	413	0	68	435	0	24	3	0	11	0	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	57.0	55.8		68.7	62.5		7.8	5.1		4.8	3.6	
Effective Green, g (s)	57.0	55.8		68.7	62.5		7.8	5.1		4.8	3.6	
Actuated g/C Ratio	0.63	0.62		0.76	0.69		0.09	0.06		0.05	0.04	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	600	2182		796	2448		136	170		98	120	
v/s Ratio Prot	0.00	c0.12		c0.01	c0.12		c0.01	0.00		0.00	0.00	
v/s Ratio Perm	0.00			0.06			c0.01			0.00		
v/c Ratio	0.00	0.19		0.09	0.18		0.18	0.02		0.11	0.00	
Uniform Delay, d1	6.1	7.4		2.7	4.8		38.2	40.1		40.2	41.5	
Progression Factor	0.77	0.83		0.92	0.93		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.0		0.0	0.2		0.6	0.0		0.5	0.0	
Delay (s)	4.7	6.1		2.5	4.6		38.8	40.1		40.7	41.5	
Level of Service	A	A		A	A		D	D		D	D	
Approach Delay (s)		6.1			4.3			39.7			40.8	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM Average Control Delay			8.2			HCM Level of Service				A		
HCM Volume to Capacity ratio			0.16									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			36.5%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

53: Bright Star Connector & Drwy 5

2014 Build AM -Bright Star Conn

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	320	14	63	340	11	22	0	49	16	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.99		1.00	1.00			0.90			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.96	
Satd. Flow (prot)	1770	3517		1770	3523			3125			3334	
Flt Permitted	0.53	1.00		0.54	1.00			0.86			0.84	
Satd. Flow (perm)	979	3517		997	3523			2744			2911	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	348	15	68	370	12	24	0	53	17	0	2
RTOR Reduction (vph)	0	2	0	0	1	0	0	49	0	0	2	0
Lane Group Flow (vph)	2	361	0	68	381	0	0	28	0	0	17	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	61.6	60.4		73.2	67.0			6.8			6.8	
Effective Green, g (s)	61.6	60.4		73.2	67.0			6.8			6.8	
Actuated g/C Ratio	0.68	0.67		0.81	0.74			0.08			0.08	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	681	2360		878	2623			207			220	
v/s Ratio Prot	0.00	c0.10		c0.01	c0.11							
v/s Ratio Perm	0.00			0.06				c0.01			0.01	
v/c Ratio	0.00	0.15		0.08	0.15			0.14			0.08	
Uniform Delay, d1	4.5	5.4		1.7	3.3			38.9			38.7	
Progression Factor	1.00	1.00		0.34	0.35			1.00			1.00	
Incremental Delay, d2	0.0	0.0		0.0	0.1			0.3			0.2	
Delay (s)	4.5	5.5		0.6	1.3			39.2			38.8	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		5.4			1.2			39.2			38.8	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM Average Control Delay			6.9			HCM Level of Service				A		
HCM Volume to Capacity ratio			0.14									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			35.1%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

56: Bright Star Connector & Drwy 6

2014 Build AM -Bright Star Conn

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	287	14	63	291	10	0	0	49	0	0	2
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	312	15	68	316	11	0	0	53	0	0	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)	465											
pX, platoon unblocked												
vC, conflicting volume	327			327			621	788	164	672	790	164
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	327			327			621	788	164	672	790	164
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			94			100	100	94	100	100	100
cM capacity (veh/h)	1229			1229			354	303	852	306	302	852
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2		
Volume Total	2	208	119	68	211	116	0	53	0	2		
Volume Left	2	0	0	68	0	0	0	0	0	0		
Volume Right	0	0	15	0	0	11	0	53	0	2		
cSH	1229	1700	1700	1229	1700	1700	1700	852	1700	852		
Volume to Capacity	0.00	0.12	0.07	0.06	0.12	0.07	0.00	0.06	0.00	0.00		
Queue Length 95th (ft)	0	0	0	4	0	0	0	5	0	0		
Control Delay (s)	7.9	0.0	0.0	8.1	0.0	0.0	0.0	9.5	0.0	9.2		
Lane LOS	A			A			A	A	A	A		
Approach Delay (s)	0.1			1.4			9.5		9.2			
Approach LOS							A		A			
Intersection Summary												
Average Delay	1.4											
Intersection Capacity Utilization	25.2%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

41: Bright Star Connector & Drwy 1

2014 Build PM -Bright Star Conn

8/20/2009

							
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations							
Volume (veh/h)	1081	33	153	1077	0	153	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	1175	36	166	1171	0	166	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage veh							
Upstream signal (ft)	591						
pX, platoon unblocked			0.85		0.85	0.85	
vC, conflicting volume			1211		2111	605	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			891		1952	177	
tC, single (s)			4.1		6.8	6.9	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			74		100	77	
cM capacity (veh/h)			642		35	709	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	783	428	166	585	585	0	166
Volume Left	0	0	166	0	0	0	0
Volume Right	0	36	0	0	0	0	166
cSH	1700	1700	642	1700	1700	1700	709
Volume to Capacity	0.46	0.25	0.26	0.34	0.34	0.00	0.23
Queue Length 95th (ft)	0	0	26	0	0	0	23
Control Delay (s)	0.0	0.0	12.6	0.0	0.0	0.0	11.6
Lane LOS			B			A	B
Approach Delay (s)	0.0		1.6			11.6	
Approach LOS						B	
Intersection Summary							
Average Delay			1.5				
Intersection Capacity Utilization			47.1%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

44: Bright Star Connector & Drwy 2

2014 Build PM -Bright Star Conn

8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↔	↑↑	↔	↔
Volume (vph)	960	34	154	923	67	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0	5.0	5.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3521		1770	3539	1770	1583
Flt Permitted	1.00		0.20	1.00	0.95	1.00
Satd. Flow (perm)	3521		379	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1043	37	167	1003	73	167
RTOR Reduction (vph)	2	0	0	0	0	150
Lane Group Flow (vph)	1078	0	167	1003	73	17
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	8	
Permitted Phases			2			8
Actuated Green, G (s)	58.3		70.9	70.9	9.1	9.1
Effective Green, g (s)	58.3		70.9	70.9	9.1	9.1
Actuated g/C Ratio	0.65		0.79	0.79	0.10	0.10
Clearance Time (s)	5.0		5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2281		416	2788	179	160
v/s Ratio Prot	c0.31		0.03	c0.28	c0.04	
v/s Ratio Perm			0.28			0.01
v/c Ratio	0.47		0.40	0.36	0.41	0.11
Uniform Delay, d1	8.0		4.0	2.8	37.9	36.8
Progression Factor	0.33		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7		0.6	0.4	1.5	0.3
Delay (s)	3.3		4.7	3.2	39.4	37.0
Level of Service	A		A	A	D	D
Approach Delay (s)	3.3			3.4	37.8	
Approach LOS	A			A	D	
Intersection Summary						
HCM Average Control Delay			6.7		HCM Level of Service	A
HCM Volume to Capacity ratio			0.47			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	15.0
Intersection Capacity Utilization			53.7%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis 47: Bright Star Connector & Drwy 3

2014 Build PM -Bright Star Conn

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	841	33	153	812	25	0	0	153	0	0	6
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	914	36	166	883	27	0	0	166	0	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)	386			454								
pX, platoon unblocked	0.95			0.86			0.88	0.88	0.86	0.88	0.88	0.95
vC, conflicting volume	910			950			1723	2185	475	1863	2190	455
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	792			609			1285	1808	55	1443	1813	312
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			80			100	100	81	100	100	99
cM capacity (veh/h)	780			828			90	55	858	56	54	648
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	5	609	341	166	588	321	166	7				
Volume Left	5	0	0	166	0	0	0	0				
Volume Right	0	0	36	0	0	27	166	7				
cSH	780	1700	1700	828	1700	1700	858	648				
Volume to Capacity	0.01	0.36	0.20	0.20	0.35	0.19	0.19	0.01				
Queue Length 95th (ft)	1	0	0	19	0	0	18	1				
Control Delay (s)	9.6	0.0	0.0	10.4	0.0	0.0	10.2	10.6				
Lane LOS	A			B			B	B				
Approach Delay (s)	0.1			1.6			10.2	10.6				
Approach LOS							B	B				
Intersection Summary												
Average Delay				1.6								
Intersection Capacity Utilization				52.2%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Signalized Intersection Capacity Analysis

50: Bright Star Connector & Drwy 4

2014 Build PM -Bright Star Conn

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	673	34	155	637	26	67	0	155	51	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3514		1770	3519		1770	3008		1770	3008	
Flt Permitted	0.33	1.00		0.29	1.00		0.75	1.00		1.00	1.00	
Satd. Flow (perm)	619	3514		539	3519		1402	3008		1863	3008	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	732	37	168	692	28	73	0	168	55	0	7
RTOR Reduction (vph)	0	4	0	0	3	0	0	157	0	0	7	0
Lane Group Flow (vph)	7	765	0	168	717	0	73	11	0	55	0	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	43.6	41.4		59.6	52.4		19.0	6.0		11.8	2.4	
Effective Green, g (s)	43.6	41.4		59.6	52.4		19.0	6.0		11.8	2.4	
Actuated g/C Ratio	0.48	0.46		0.66	0.58		0.21	0.07		0.13	0.03	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	328	1616		537	2049		349	201		235	80	
v/s Ratio Prot	0.00	c0.22		c0.05	c0.20		c0.03	0.00		0.02	0.00	
v/s Ratio Perm	0.01			0.16			c0.01			0.01		
v/c Ratio	0.02	0.47		0.31	0.35		0.21	0.06		0.23	0.00	
Uniform Delay, d1	14.8	16.8		11.6	9.9		29.5	39.3		34.3	42.6	
Progression Factor	0.43	0.57		0.75	0.82		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.2		0.3	0.5		0.3	0.1		0.5	0.0	
Delay (s)	6.4	9.8		9.0	8.6		29.8	39.5		34.8	42.6	
Level of Service	A	A		A	A		C	D		C	D	
Approach Delay (s)		9.8			8.6			36.5			35.7	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM Average Control Delay	13.4			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.37											
Actuated Cycle Length (s)	90.0			Sum of lost time (s)			15.0					
Intersection Capacity Utilization	55.0%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

53: Bright Star Connector & Drwy 5

2014 Build PM -Bright Star Conn

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	508	33	154	530	26	67	0	154	51	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.99		1.00	0.99			0.90			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.96	
Satd. Flow (prot)	1770	3507		1770	3515			3122			3332	
Flt Permitted	0.38	1.00		0.43	1.00			0.85			0.76	
Satd. Flow (perm)	701	3507		801	3515			2689			2639	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	552	36	167	576	28	73	0	167	55	0	7
RTOR Reduction (vph)	0	4	0	0	2	0	0	150	0	0	6	0
Lane Group Flow (vph)	7	584	0	167	602	0	0	90	0	0	56	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	50.3	50.3		64.5	64.5			9.3			9.3	
Effective Green, g (s)	50.3	50.3		64.5	64.5			9.3			9.3	
Actuated g/C Ratio	0.56	0.56		0.72	0.72			0.10			0.10	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	406	1960		740	2519			278			273	
v/s Ratio Prot	0.00	c0.17		0.04	c0.17							
v/s Ratio Perm	0.01			0.12				c0.03			0.02	
v/c Ratio	0.02	0.30		0.23	0.24			0.32			0.20	
Uniform Delay, d1	9.0	10.5		4.6	4.4			37.4			37.0	
Progression Factor	1.00	1.00		0.35	0.38			1.00			1.00	
Incremental Delay, d2	0.0	0.1		0.2	0.2			0.7			0.4	
Delay (s)	9.0	10.6		1.7	1.9			38.1			37.3	
Level of Service	A	B		A	A			D			D	
Approach Delay (s)		10.6			1.9			38.1			37.3	
Approach LOS		B			A			D			D	
Intersection Summary												
HCM Average Control Delay			11.5			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.28									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			53.9%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 56: Bright Star Connector & Drwy 6

2014 Build PM -Bright Star Conn

8/20/2009

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Volume (veh/h)	6	394	33	153	425	25	0	0	153	0	0	6		
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	7	428	36	166	462	27	0	0	166	0	0	7		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)														
Median type	None			None										
Median storage (veh)														
Upstream signal (ft)				465										
pX, platoon unblocked														
vC, conflicting volume	489			464			1029	1281	232	1202	1285	245		
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	489			464			1029	1281	232	1202	1285	245		
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9		
tC, 2 stage (s)														
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3		
p0 queue free %	99			85			100	100	78	100	100	99		
cM capacity (veh/h)	1070			1093			164	138	770	97	138	756		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2				
Volume Total	7	286	179	166	308	181	0	166	0	7				
Volume Left	7	0	0	166	0	0	0	0	0	0				
Volume Right	0	0	36	0	0	27	0	166	0	7				
cSH	1070	1700	1700	1093	1700	1700	1700	770	1700	756				
Volume to Capacity	0.01	0.17	0.11	0.15	0.18	0.11	0.00	0.22	0.00	0.01				
Queue Length 95th (ft)	0	0	0	13	0	0	0	20	0	1				
Control Delay (s)	8.4	0.0	0.0	8.9	0.0	0.0	0.0	11.0	0.0	9.8				
Lane LOS	A			A			A	B	A	A				
Approach Delay (s)	0.1			2.3			11.0			9.8				
Approach LOS							B							
Intersection Summary														
Average Delay				2.6										
Intersection Capacity Utilization				35.4%	ICU Level of Service						A			
Analysis Period (min)				15										

HCM Unsignalized Intersection Capacity Analysis

41: Bright Star Connector & Drwy 1

2014 Build SAT (PM) -Bright Star Conn

8/20/2009

							
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations							
Volume (veh/h)	1169	42	190	1284	0	170	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	1271	46	207	1396	0	185	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage veh							
Upstream signal (ft)	591						
pX, platoon unblocked			0.82		0.82	0.82	
vC, conflicting volume			1316		2404	658	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			935		2269	128	
tC, single (s)			4.1		6.8	6.9	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			65		100	75	
cM capacity (veh/h)			594		18	733	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	847	469	207	698	698	0	185
Volume Left	0	0	207	0	0	0	0
Volume Right	0	46	0	0	0	0	185
cSH	1700	1700	594	1700	1700	1700	733
Volume to Capacity	0.50	0.28	0.35	0.41	0.41	0.00	0.25
Queue Length 95th (ft)	0	0	39	0	0	0	25
Control Delay (s)	0.0	0.0	14.3	0.0	0.0	0.0	11.6
Lane LOS			B			A	B
Approach Delay (s)	0.0		1.8			11.6	
Approach LOS						B	
Intersection Summary							
Average Delay	1.6						
Intersection Capacity Utilization	50.8%			ICU Level of Service		A	
Analysis Period (min)	15						

HCM Signalized Intersection Capacity Analysis

44: Bright Star Connector & Drwy 2

2014 Build SAT (PM) -Bright Star Conn

8/20/2009

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Volume (vph)	1041	42	190	1094	66	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0	5.0	5.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3518		1770	3539	1770	1583
Flt Permitted	1.00		0.17	1.00	0.95	1.00
Satd. Flow (perm)	3518		322	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1132	46	207	1189	72	185
RTOR Reduction (vph)	3	0	0	0	0	166
Lane Group Flow (vph)	1175	0	207	1189	72	19
Turn Type			pm+pt			Perm
Protected Phases	6		5	2	8	
Permitted Phases			2			8
Actuated Green, G (s)	57.0		70.9	70.9	9.1	9.1
Effective Green, g (s)	57.0		70.9	70.9	9.1	9.1
Actuated g/C Ratio	0.63		0.79	0.79	0.10	0.10
Clearance Time (s)	5.0		5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2228		397	2788	179	160
v/s Ratio Prot	0.33		c0.05	0.34	c0.04	
v/s Ratio Perm			c0.36			0.01
v/c Ratio	0.53		0.52	0.43	0.40	0.12
Uniform Delay, d1	9.1		5.4	3.1	37.9	36.8
Progression Factor	0.45		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9		1.2	0.5	1.5	0.3
Delay (s)	4.9		6.6	3.5	39.4	37.1
Level of Service	A		A	A	D	D
Approach Delay (s)	4.9			4.0	37.8	
Approach LOS	A			A	D	
Intersection Summary						
HCM Average Control Delay			7.5		HCM Level of Service	A
HCM Volume to Capacity ratio			0.49			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			58.1%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis 47: Bright Star Connector & Drwy 3

2014 Build SAT (PM) -Bright Star Conn

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	913	42	190	928	42	0	0	170	0	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	992	46	207	1009	46	0	0	185	0	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)		386			454							
pX, platoon unblocked	0.92			0.85			0.89	0.89	0.85	0.89	0.89	0.92
vC, conflicting volume	1054			1038			1959	2502	519	2145	2502	527
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	882			687			1416	2027	76	1626	2027	308
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			73			100	100	78	100	100	99
cM capacity (veh/h)	701			766			67	36	823	37	36	632
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	10	662	376	207	672	382	185	7				
Volume Left	10	0	0	207	0	0	0	0				
Volume Right	0	0	46	0	0	46	185	7				
cSH	701	1700	1700	766	1700	1700	823	632				
Volume to Capacity	0.01	0.39	0.22	0.27	0.40	0.22	0.22	0.01				
Queue Length 95th (ft)	1	0	0	27	0	0	21	1				
Control Delay (s)	10.2	0.0	0.0	11.4	0.0	0.0	10.6	10.8				
Lane LOS	B			B			B	B				
Approach Delay (s)	0.1			1.9			10.6	10.8				
Approach LOS							B	B				
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			57.6%			ICU Level of Service			B			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

50: Bright Star Connector & Drwy 4

2014 Build SAT (PM) -Bright Star Conn

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	738	42	190	744	0	76	0	170	56	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt		0.99		1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3510		1770	3539		1770	3008		1770	3008	
Flt Permitted		1.00		0.23	1.00		0.75	1.00		1.00	1.00	
Satd. Flow (perm)		3510		434	3539		1402	3008		1863	3008	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	802	46	207	809	0	83	0	185	61	0	7
RTOR Reduction (vph)	0	4	0	0	0	0	0	173	0	0	7	0
Lane Group Flow (vph)	0	844	0	207	809	0	83	12	0	61	0	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		44.7		59.2	59.2		19.4	6.0		12.2	2.4	
Effective Green, g (s)		44.7		59.2	59.2		19.4	6.0		12.2	2.4	
Actuated g/C Ratio		0.50		0.66	0.66		0.22	0.07		0.14	0.03	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1743		426	2328		357	201		242	80	
v/s Ratio Prot		0.24		c0.05	0.23		c0.03	0.00		0.03	0.00	
v/s Ratio Perm				c0.27			c0.02			0.01		
v/c Ratio		0.48		0.49	0.35		0.23	0.06		0.25	0.00	
Uniform Delay, d1		15.0		7.8	6.8		29.4	39.4		34.0	42.6	
Progression Factor		0.59		1.41	0.90		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2		0.8	0.4		0.3	0.1		0.6	0.0	
Delay (s)		9.1		11.8	6.5		29.8	39.5		34.5	42.6	
Level of Service		A		B	A		C	D		C	D	
Approach Delay (s)		9.1			7.6			36.5			35.4	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM Average Control Delay			12.5			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			59.5%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

53: Bright Star Connector & Drwy 5

2014 Build SAT (PM) -Bright Star Conn

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	554	42	190	594	42	76	0	170	56	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.99		1.00	0.99			0.90			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.96	
Satd. Flow (prot)	1770	3502		1770	3504			3124			3335	
Flt Permitted	0.38	1.00		0.38	1.00			0.85			0.78	
Satd. Flow (perm)	700	3502		699	3504			2682			2717	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	602	46	207	646	46	83	0	185	61	0	7
RTOR Reduction (vph)	0	5	0	0	4	0	0	167	0	0	6	0
Lane Group Flow (vph)	11	643	0	207	688	0	0	101	0	0	62	0
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	1	6		5	2			8			4	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	53.1	50.7		71.1	63.7			8.9			8.9	
Effective Green, g (s)	53.1	50.7		71.1	63.7			8.9			8.9	
Actuated g/C Ratio	0.59	0.56		0.79	0.71			0.10			0.10	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	442	1973		735	2480			265			269	
v/s Ratio Prot	0.00	c0.18		c0.05	0.20							
v/s Ratio Perm	0.01			0.17				c0.04			0.02	
v/c Ratio	0.02	0.33		0.28	0.28			0.38			0.23	
Uniform Delay, d1	8.4	10.5		4.1	4.8			38.0			37.4	
Progression Factor	1.00	1.00		0.48	0.47			1.00			1.00	
Incremental Delay, d2	0.0	0.1		0.2	0.3			0.9			0.4	
Delay (s)	8.4	10.6		2.2	2.5			38.9			37.8	
Level of Service	A	B		A	A			D			D	
Approach Delay (s)		10.6			2.4			38.9			37.8	
Approach LOS		B			A			D			D	
Intersection Summary												
HCM Average Control Delay			11.7			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			56.5%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 56: Bright Star Connector & Drwy 6

2014 Build SAT (PM) -Bright Star Conn

8/20/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	436	42	190	444	42	0	0	170	0	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	474	46	207	483	46	0	0	185	0	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					465							
pX, platoon unblocked												
vC, conflicting volume	528			520			1177	1458	260	1360	1458	264
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	528			520			1177	1458	260	1360	1458	264
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			80			100	100	75	100	100	99
cM capacity (veh/h)	1035			1043			122	102	739	68	102	734
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2		
Volume Total	10	316	204	207	322	207	0	185	0	7		
Volume Left	10	0	0	207	0	0	0	0	0	0		
Volume Right	0	0	46	0	0	46	0	185	0	7		
cSH	1035	1700	1700	1043	1700	1700	1700	739	1700	734		
Volume to Capacity	0.01	0.19	0.12	0.20	0.19	0.12	0.00	0.25	0.00	0.01		
Queue Length 95th (ft)	1	0	0	18	0	0	0	25	0	1		
Control Delay (s)	8.5	0.0	0.0	9.3	0.0	0.0	0.0	11.5	0.0	9.9		
Lane LOS	A			A			A	B	A	A		
Approach Delay (s)	0.2			2.6			11.5		9.9			
Approach LOS							B		A			
Intersection Summary												
Average Delay			2.9									
Intersection Capacity Utilization			39.4%			ICU Level of Service			A			
Analysis Period (min)			15									