THE TERRACES OF LAFAYETTE

TRAFFIC IMPACT STUDY

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I. INTRODUCTION AND SUMMARY OF FINDINGS

A. Introduction

This Traffic Impact Study ("Study") reviews the potential traffic impacts of The Terraces of Lafayette, a proposed multifamily residential apartment project, consisting of 315 units, with a mixture of one, two and three bedroom apartments (the "Project"). As shown on **Figure 1/Project Location**, the Project site is located at the western terminus of Deer Hill Road, at the northwest corner of the Highway 24/Pleasant Hill Road intersection.

As shown on **Figure 2/Site Plan**, the Project site consists of approximately 22 acres. The proposed apartments are contained within two and three-story building structures, identified as "A" through "M," predominantly on the "flat shelf" area of the Project site. The Project includes 569 on-site parking spaces. The main Project entrance is off Pleasant Hill Road, with two secondary entrances off Deer Hill road, and with interior circulation as shown on **Figure 2/Site Plan**.

The Project applicant has proposed significant road and circulation improvements to address traffic circulation on Pleasant Hill Road. These road and circulation improvements include: (i) construction of a northbound turn lane on Pleasant Hill Road, enabling vehicles to turn left into the main Project entrance; and (ii) a new southbound through-lane on Pleasant Hill Road from north of Deer Hill to the Highway 24 freeway on ramp. As detailed in this Study, the proposed northbound turn lane virtually eliminates the addition of Project vehicles from turning left at Deer Hill Road during the PM peak hour. Further, the proposed southbound through-lane on Pleasant Hill Road will result in a significant increase in capacity during the AM peak hour.

This Study: (i) describes the existing traffic and circulation system, parking conditions, and pedestrian and transit conditions in the vicinity of the Project, together with existing City and regional policies and standards regarding traffic impacts; and (ii) provides an analysis of the potential traffic impacts of the Project. This Study has been conducted consistent with the requirements and methodologies required by the City of Lafayette.

B. Summary of Findings

While a total of eight (8) intersections and several roadways are analyzed in this Study, it is clear that the area with the greatest potential for impacts from Project traffic is along Pleasant Hill Road, and specifically the Pleasant Hill Road and Deer Hill Road/Stanley Boulevard intersection. Currently, the Pleasant Hill Road and Deer Hill Road/Stanley Boulevard intersection operates at an acceptable Level of Service during both the AM and PM peak hours. However, there is a concern regarding future traffic travelling southbound through the intersection during the AM peak hour, and northbound through the intersection during the PM peak hour. Without the Project, such increasing traffic (from regional traffic growth and future build-out within the City) is expected to eventually degrade the referenced Level of Service.

The construction of the Project (including proposed traffic-related improvements) is not expected to have any significant adverse impact on traffic levels and/or the current or future Levels of Service at the studied intersections. Additionally, the Project-related traffic

improvements will actually expand the capacity of Pleasant Hill Road to better accommodate cumulative future traffic increases.

The Project, with the proposed road and circulation improvements, will significantly improve the traffic conditions along Pleasant Hill Road and at the Pleasant Hill Road and Deer Hill Road/Stanley Boulevard intersection. This is primarily due to the construction of the additional southbound through-lane along Pleasant Hill Road.

The Project, with the proposed road and circulation improvements, is consistent with the standards set by the Contra Costa Transportation Authority, and specifically the Multi-modal Transportation Service Objectives (MTSOs) as listed in the Lamorinda Action Plan and the Pleasant Hill Road Action Plan.

For these and other reasons set forth in this Study, the Project traffic will not have a significant adverse effect or impact on existing and future traffic conditions.

II. CURRENT PROJECT SETTING

This section of the Study describes the roadways, traffic conditions and other existing transportation characteristics in the vicinity of the Project. The primary basis of the analysis is the peak hour level of service for the key intersections identified herein. The hours identified as the "peak" hours are generally between 8:00 a.m. and 9:00 a.m. and 5:00 p.m. and 6:00 p.m. for all of the transportation facilities described. Throughout this Study, these peak hours will be identified as the AM and PM peak hours, respectively.

A. Project Study Intersections

A traffic study must be prepared for the Contra Costa Transportation Authority (CCTA) for all projects that generate over 100 trips during a one-hour period. With 315 residential units it is estimated that the proposed Project could generate as many as 185 vehicle trips on a weekday during the critical PM peak hour. Based on the project's trip generation and the potential for traffic impacts, the study area was defined, and a preliminary list of Project study intersections was prepared.

Generally, the efficiency of street systems can be objectively measured by focusing on conditions at identified "key intersections" – those intersections which are potentially impacted by Project-generated traffic. Eight such key intersections are set forth below. (Project traffic generation at intersections other than the noted key intersections is projected at fewer than 50 trips during the peak hour, thereby requiring no further capacity analysis.)

The key intersections that are analyzed in this Study are identified in **Figure 1/Project Location** as follows:

Intersection #1: Pleasant Hill Road and Rancho View Drive
Intersection #2: Pleasant Hill Road and Green Valley Drive
Intersection #3: Pleasant Hill Road and Reliez Valley Road
Intersection #4: Pleasant Hill Road and Springhill Road/Quandt Road
Intersection #5: Pleasant Hill Road and Deer Hill Road/Stanley Boulevard
Intersection #6: Pleasant Hill Road and Mt. Diablo Blvd/Hwy 24 EB On-Ramp
Intersection #7: Pleasant Hill Road and Old Tunnel Road/Hwy 24 EB Off-Ramp
Intersection #8: Deer Hill Road and Brown Avenue

All of these intersections are signalized with the exception of Brown Avenue.

B. Traffic Analysis Scenarios

The key intersections were evaluated for the following scenarios:

- Scenario 1: Existing Conditions – Level of Service (LOS) based on existing peak hour volumes and existing intersection configurations.

- Scenario 2: Baseline Conditions – Existing traffic plus anticipated traffic from approved developments in the study area.[1]

- Scenario 3: Baseline Conditions Plus Project – Baseline conditions peak hour volumes plus trips from the Project with the Project's road and circulation improvements.

- Scenario 4: Cumulative Conditions (Year 2030) per the Certified General Plan EIR (without the Project; and with the Project).

C. Existing Roadway Network

The project location and the surrounding roadway network are illustrated in **Figure 1/Project Location**. The primary roadways that would be affected by the project include:

- **Pleasant Hill Road** – Pleasant Hill Road is a four-lane arterial roadway located on the east side of Lafayette. It has an interchange with the State Highway 24 freeway just south of the Project.

- **Deer Hill Road** – Deer Hill Road is a two-lane roadway that travels generally in an west-east direction, located on the north side of Highway 24. At Pleasant Hill Road, the name changes to Stanley Boulevard which provides the principal access to Acalanes High School.

- **Mt. Diablo Boulevard** – Mt Diablo Boulevard is a four-lane arterial on the south side of Highway 24, and connects with Lafayette's downtown commercial district.

[1] This Study assumes approximately four (4) years of growth for Scenario 2, as opposed to growth to the year 2030 in Scenario 4.

- Other streets that appear in this traffic analysis include **Springhill Road, Quandt Road, Reliez Valley Road, Green Valley Drive, Rancho View Drive, Brown Avenue** and **Old Tunnel Road**. These are all two-lane local streets serving primarily residential uses. Brown Avenue also includes some commercial development and an underpass crossing of Highway 24, where it connects to Mt. Diablo Boulevard in Downtown Lafayette.

III. INTERSECTION ANALYSIS METHODOLOGY

A. Highway Capacity Manual (HCM) Level of Service Methodology

Existing operational conditions at the eight key intersections have been evaluated using Synchro Software to implement the 2000 *Highway Capacity Manual (HCM)* Level of Service (LOS) methodology.[2] "Level of Service" is an expression, in the form of a scale, of the relationship between the capacity of an intersection (or roadway segment) to accommodate the volume of traffic moving through the intersection at any given time. The Level of Service scale describes traffic flow with six ratings ranging from "A" through "F," with "A" indicating relatively free flow of traffic and "F" indicating stop-and-go traffic characterized by traffic jams.

As the amount of traffic moving through a given intersection or roadway segment increases, the traffic flow conditions that motorists experience rapidly deteriorate as the capacity of the intersection or roadway segment is reached. Under such conditions, there is general instability in the traffic flow, which means that relatively small incidents (e.g., momentary engine stall) can cause considerable fluctuations in speeds and delays that lead to traffic congestion. This near-capacity situation is labeled Level of Service (LOS) "E." Beyond LOS "E," the intersection or roadway segment capacity has been exceeded, and arriving traffic will exceed the ability of the intersection to accommodate the traffic.

For *signalized intersections*, the HCM methodology determines the capacity of each lane group approaching the intersection. The LOS is then based on average control delay (in seconds per vehicle) for the various movements within the intersection. A combined weighted average control delay and LOS are presented for the intersection.

Table 1 summarizes the relationship between LOS and average control delay at signalized intersections, using the HCM methodology as set forth in **Appendix Section 1**. Please note that, per the requirements set forth by the Contra Costa County Transportation Authority (CCTA), all signalized intersections have also been analyzed using the methodology set forth in the Final Technical Procedures Update (dated July 19, 2006). The CCTA LOS printouts have been included in **Appendix Section 2** to allow verification that these results are the same or better when compared to the HCM results.

[2] *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000. As part of the *HCM methodology*, adjustments are typically made for various factors that reduce the ability of the streets to accommodate vehicles (such as the downtown nature of the area, number of pedestrians, vehicle types, lane widths, grades, on-street parking and queues). These adjustments are performed to ensure that the LOS analysis results reflect the operating conditions that are observed in the field.

For *unsignalized intersections* (all-way stop controlled and two-way stop controlled), the average control delay and LOS operating conditions are calculated by: (i) approach (e.g., northbound) and (ii) movement (e.g., northbound left-turn) for those movements that are subject to delay. In general, the operating conditions for unsignalized intersections are presented for the worst approach. **Table 2** summarizes the relationship between LOS and average control delay at unsignalized intersections, using the HCM methodology.

TABLE 1
SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS (HCM)

Level of Service	Description of Operations	Average Delay (sec/veh)
A	Insignificant Delays: No approach phase is fully used and no vehicle waits longer than one red indication.	≤ 10
B	Minimal Delays: An occasional approach phase is fully used. Drivers begin to feel restricted.	> 10 to 20
C	Acceptable Delays: Major approach phase may become fully used. Most drivers feel somewhat restricted.	> 20 to 35
D	Tolerable Delays: Drivers may wait through no more than one red indication. Queues may develop but dissipate rapidly without excessive delays.	> 35 to 55
E	Significant Delays: Volumes approaching capacity. Vehicles may wait through several signal cycles and long vehicle queues from upstream.	> 55 to 80
F	Excessive Delays: Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80

SOURCE: *Highway Capacity Manual*, Transportation Research Board, 2000

TABLE 2
UNSIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS (HCM)

Level of Service	Description of Operations	Average Delay (secs/veh)
A	No delay for stop-controlled approaches.	0 to 10
B	Operations with minor delays.	> 10 to 15
C	Operations with moderate delays.	> 15 to 25
D	Operations with some delays.	> 25 to 35
E	Operations with high delays and long queues.	> 35 to 50
F	Operation with extreme congestion, with very high delays and long queues unacceptable to most drivers.	> 50

SOURCE: *Highway Capacity Manual*, Transportation Research Board, 2000

B. The City of Lafayette Level of Service Policy

The City of Lafayette General Plan, adopted in 2002 (the "General Plan") confirms that the City uses both the Contra Costa Transportation Authority (CCTA) and the Highway Capacity Manual (HCM) methods for calculation LOS on roadways and intersections.[3] Because it has been found that in Lafayette the HCM procedures produce a more accurate estimate of actual operating conditions, it is the preferred methodology.

The length of time a vehicle is delayed at a signalized intersection as used in this Study is based on the year 2000 HCM. The HCM procedures used in the 2002 Lafayette General Plan were based on the 1994 HCM. The resultant LOS letter grade is the same using either HCM.

C. Contra Costa Transportation Authority and Related Requirements

1. Contra Costa Transportation Authority/Growth Management Program/Action Plans

The Contra Costa Transportation Authority (CCTA) was originally formed to manage the funds for transportation and related infrastructure improvements generated by the half-cent sales tax enacted by the voters of Contra Costa County in 1988 under Measure C. In 2004, through Measure J, the voters extended the sales tax through the year 2034.

The CCTA carries out all implementing programs of Measures C and J, including the Growth Management Program (GMP). The CCTA further serves as the Congestion Management Agency (CMA). In such capacity, the CCTA prepares and updates the Congestion Management Program (CMP). The CMP contains several components, including: (i) traffic level of service standards for State highways and principle arterials; and (ii) multi-modal performance measures to evaluate transportation systems.

A primary component of the CCTA's Growth Management Program is the requirement that local jurisdictions engage in "cooperative, multi-jurisdictional planning." Such multi-jurisdictional planning in turn requires that Regional Transportation Planning Commissions ("RTMCs") prepare "Action Plans for Routes of Regional Significance" ("Action Plans"). These Action Plans provide for "Multi-modal Transportation Service Objectives" ("MTSOs") that establish quantifiable measures of effectiveness and include dates for attaining the stated objectives.

2. Lamorinda Action Plan Update

In the Lamorinda area, the Southwest Area Transportation Committee ("SWAT") serves as the RTMC for purposes of preparation of an Action Plans for Lamorinda and the Tri-Valley areas. The Lamorinda Program Management Committee (LPMC) is a sub-group of SWAT for the Lamorinda area. In 1995, the LPMC adopted an Action Plan for Routes of Regional Significance, primarily focusing on State Route 24/BART corridor. In 1998, a separate Action Plan for Pleasant Hill Road was prepared. The Lamorinda Action plan was updated in

[3] See City General Plan at p. II-4, and at Table 2.

2000 and most recently by Final Report prepared by DKS Associates dated December 2009 (the "Lamorinda Action Plan Update").

The Lamorinda Action Plan Update identifies Pleasant Hill Road as a Route of Regional Significance. The MTSOs for Pleasant Hill Road set forth several objectives, including the following:

- Maintain peak hour peak direction delay index of 2.0 or lower.

The delay index ("DI") is the ratio of the travel time during the peak hour to the travel time that would be experienced during off-peak, free-flow periods.

Abrams Associates measured the travel time conditions on Pleasant Hill Road during May 2011. Average measured test results indicated a delay index (DI) of approximately 1.7 and 1.6 during AM and PM peak hours. The average southbound AM travel time was measured to be 18.5 mph, while the northbound PM travel time was measured at 16.5 mph. The measurements confirm that existing conditions at Pleasant Hill Road are within the CCTA/MTSO standards. For the reasons set forth in this Study, the addition of Project traffic should have no significant impact on the DI and, therefore, conditions should remain consistent with applicable standards.

IV. PROJECT AND ROAD IMPROVEMENTS

A. Proposed Project

The proposed project will be a mixture of one-bedroom, two-bedroom and three-bedroom apartments, with a total of 315 units. There will also be about 9,000 square feet for the clubhouse, and a small leasing office. The project will have a total of 569 parking spaces, with 376 spaces in garages and carports, and 193 uncovered.

1. Driveway Locations and Site Access

As shown on the site plan, there are three driveways that will serve the project. At the main project entrance on Pleasant Hill Road, the applicant is proposing that a northbound left turn lane be constructed for traffic turning into the project. The proposed driveways on Deer Hill Road will each operate with all turning movements.

Driveway 1 – This is a secondary entrance on Deer Hill Road. It is located about 275 feet from the western property line. The sight distance is adequate, and this location is a good choice for access.

Driveway 2 – This is a secondary entrance on Deer Hill Road about 275 feet west of Pleasant Hill Road. Due to the combination of the downgrade and the vertical curve on Deer Hill Road, sight distance for this driveway was carefully reviewed. Field studies show that the sight distance between a vehicle on eastbound Deer Hill Road and a vehicle that is exiting the project is about 400 feet. This is sufficient to meet the standards for a 35 mph vehicle speed on Deer Hill Road. Both driveways on Deer Hill Road will provide direct access to Downtown and the BART Station without impacting any Pleasant Hill Road intersections.

Driveway 3 – This driveway is located on Pleasant Hill Road and will be the main entrance to the site. It is located about 380 feet south of Deer Hill Road. A northbound left turn lane will be constructed within the existing median on Pleasant Hill Road. This driveway location will operate safely and effectively as located. This sight distance is adequate. The driveway will result in the removal of some on-street parking spaces on Pleasant Hill Road.

The proposed northbound left turn-in-only lane is well removed from and will not affect the existing turn lane at Deer Hill Road. Preliminary engineering indicates that the new turn lane, in conjunction with the new southbound through lane, can be constructed within the existing right-of-way and a minor dedication from the Project property.

B. Project Circulation and Road Improvements

The Project includes several significant roadway, bicycle and pedestrian improvements to Pleasant Hill Road ("road and circulation improvements"), which will significantly enhance transportation conditions when the Project is built. Average vehicle delay at the Pleasant Hill and Deer Hill Road/Stanley Boulevard intersection will be reduced, even with the inclusion of Project traffic. Stated another way, if the Project is *not* built, average delay at this intersection will increase to a greater extent than if the Project *is* built. The significant Project road and circulation improvements include:

1. Project entry on Pleasant Hill Road. The Project entry includes a protected left-turn-in pocket for northbound vehicles. This improvement will keep Project traffic from having to make a left or U-turn at Deer Hill Road. Direct access to Pleasant Hill Road is designed to keep a significant amount of Project traffic from impacting the Pleasant Hill Road and Deer Hill Road/Stanley Boulevard intersection. The Pleasant Hill Road driveway provides direct access to the freeway without passing through any signalized intersections on Pleasant Hill Road.

2. Additional southbound lane on Pleasant Hill Road from north of Deer Hill Road to the freeway onramp. This improvement will add 50% more southbound capacity through the Pleasant Hill and Deer Hill Road/Stanley Boulevard intersection. In the AM peak hour, this additional capacity will have the added benefit of providing more pedestrian crossing time for Acalanes students and will help reduce traffic backup toward Springhill Road. During the PM peak hour, the additional southbound capacity will help increase time available for northbound left turns from Pleasant Hill Road to Deer Hill Road, which will have a positive impact on overall northbound traffic as well.

3. Sidewalk on Deer Hill Road from Pleasant Hill road to the western edge of the Property (approximately 2,000 LF). This improvement will provide pedestrian access to Acalanes High School for the neighborhood along and near Deer Hill Road approximately 3/4 miles to the west of Pleasant Hill Road.

4. Sidewalk from Deer Hill Road along the west side of Pleasant Hill Road to the existing sidewalk at the westbound freeway onramp. This sidewalk will provide direct pedestrian access from the project to Mt. Diablo Boulevard and the Downtown Area.

5. Extension of bike lane on the west side of Pleasant Hill Road from Deer Hill road, along the project frontage to the freeway. Bike lanes currently exist on the east side of Pleasant

Hill Road and on both sides of Deer Hill Road. There is no bike lane on the west side of Pleasant Hill Road, at the project frontage, but one does exist north of Deer Hill Road. The project includes extending that bike lane along the project frontage to the freeway.

C. Project Trip Generation

The trip generation calculations are shown in **Table 3**. They are based on the trip generation for Apartments (Land Use Code 220) from ITE's Trip Generation (8th Edition).

TABLE 3
TRIP GENERATION CALCULATIONS

Land Use	ITE Code	Size	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Apartments	220	315 units	1,981	43	109	152	113	72	185

Based on the ITE, the trip generation rate for this apartment project is 0.59 PM peak hour trips per unit. This is consistent with the estimates of trip rates that have been made in other recent traffic studies in Walnut Creek and Pleasant Hill for similar apartment projects of this size and located roughly the same distance from BART.

The Project would have two driveways on Deer Hill Road, and one driveway on Pleasant Hill Road where these trips will enter and exit the project. The total trip generation reflects all vehicle trips that that would be generated at these three driveways. Since this Project would be all residential land uses, there were no adjustments applied to account for pass-by or internal trips. In summary, the Project is forecast to generate a total of 152 vehicle trips during the AM peak hour and about 185 trips during the PM peak hour.

The site traffic is assumed to be split between the three driveways, which will reduce the concentration of traffic at any one location. The trips generated by this proposed development are estimated for the typical peak commute hours of 8:00 to 9:00 AM and 5:00 to 6:00 PM. This represents the peak hour of "adjacent street traffic" during the time periods when the uses generally contribute to the greatest amount of congestion.

D. Project Trip Distribution

The trip distribution assumptions have been based on the project's proximity to freeway interchanges, the existing directional split at other local driveways and intersections, and the overall land use patterns in the area. **Figure 5** presents the trip distribution percentages estimated by Abrams Associates to be used in the analysis and the AM and PM peak hour trips generated by the proposed Project at each key intersection, including the three Project driveways.

E. Project Directional Split

The percentage distribution of traffic to each of the access roadways is assumed to be as follows:

Direction	Percent	PM Trips
Pleasant Hill Road to the north	13%	24 trips
Deer Hill Road to the west	18%	33 trips
Stanley Boulevard to the east	8%	15 trips
Highway 24 to the west	21%	39 trips
Pleasant Hill Road to the south	16%	30 trips
Highway 24 to the east	24%	44 trips

V. STUDY INTERSECTIONS AND TRAFFIC ANALYSIS SCENARIOS

The eight study intersections were evaluated based on four scenarios: Existing Conditions; Baseline Conditions; Baseline Conditions Plus Project; and Cumulative Conditions, as set forth below.

A. Scenario 1: Existing Conditions

For purposes of this Study, for Scenario 1 (Existing Conditions) Abrams Associates measured the existing intersection geometry and traffic counts at the study intersections for weekday AM and PM peak hours. The results are presented in **Appendix Section 1** and are summarized below.

AM and PM peak hour turning movement counts were conducted at each of the Project study intersections in 2010 and 2011 at times when local schools were in session. **Figure 3** presents the existing lane configurations at the project study intersections and **Figure 4** presents the existing traffic volumes. **Table 4** summarizes the associated LOS computation results for the existing weekday AM and PM peak hour conditions (the corresponding LOS analysis calculation sheets are presented in the **Appendix Section 1**).

TABLE 4
EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS

INTERSECTION		CONTROL	PEAK HOUR	EXISTING	
				DELAY (sec/veh)	LOS
1	Pleasant Hill Road and Rancho View Drive	Traffic Signal	AM	3.7	A
			PM	8.1	A
2	Pleasant Hill Road and Green Valley Drive	Traffic Signal	AM	5.7	A
			PM	8.9	A
3	Pleasant Hill Road and Reliez Valley Road	Traffic Signal	AM	12.1	B
			PM	10.4	B
4	Pleasant Hill Road and Springhill Road/Quandt Road	Traffic Signal	AM	9.4	A
			PM	8.2	A
5	Pleasant Hill Road and Deer Hill Road/Stanley Boulevard	Traffic Signal	AM	26.3	C
			PM	49.4	D

6	Pleasant Hill Road and Mt Diablo Blvd/EB Hwy 24 On-ramp	Traffic Signal	AM PM	19.5 22.8	B C
7	Pleasant Hill Road and EB Hwy 24 Off-ramp/Old Tunnel Road	Traffic Signal	AM PM	10.0 11.6	A B
8	Deer Hill Road and Brown Avenue	Stop Sign Control	AM PM	163.9 172.9	F F

SOURCE: Abrams Associates, 2011

NOTE: At traffic signals, the delay is the average for all vehicles at the intersection is presented in terms of seconds per vehicle. At an unsignalized intersection, the delay is for the most critical single movement.

As shown in **Table 4**, the intersection capacity results reveal that all of the signalized intersections currently have acceptable conditions (LOS "D" or better) during the weekday AM and PM peak hours. The two-way stop on Deer Hill Road at Brown Avenue is quite different. While the overall LOS is "B" (23.2 sec), the side street movements have particularly high delay, and operate at LOS "F". This problem could be mitigated by the use of a traffic signal.

There are seven signalized intersections on Pleasant Hill Road. The intersections at the Highway 24 ramps operate at LOS "B" and "C", and are well below the capacity threshold. At all other intersections there is considerable excess capacity.

Of all the intersections studied, the Pleasant Hill Road and Deer Hill Road/Stanley Boulevard is the most critical, with: (i) LOS "C" during the AM peak hour; and (ii) LOS "D" during the PM peak hour. In the AM peak hour, this intersection is affected by the traffic patterns at Acalanes High School, as well as commute traffic. In the PM peak hour, the primary factor is homeward-bound commute traffic.

To check findings in this Study, Abram Associates reviewed several City documents, including: (i) the Lafayette General Plan (2002) and its accompanying EIR; and (ii) the proposed 2009 Addendum to the Lafayette General Plan Revision Final EIR for GP02-08/RZ02-08 (the "2009 Addendum").[4] A review of the Lafayette General Plan in 2002; the 2009 Addendum; and the Abrams Associates "existing conditions" data prepared for this Study (in 2011), shows certain consistencies and trends in the traffic data -- specifically with regard to the Pleasant Hill Road and Deer Hill Road/Stanley Boulevard intersection. A review of the documents and information generally shows higher traffic at the referenced intersection in 2002; somewhat reduced traffic in 2009; and a minor increase in such traffic in 2011. (These fluctuations do not necessarily impact the corresponding LOS for the intersections for the referenced time periods.) The reasons for the fluctuations likely include the following: (i) the economy in 2002 was much more robust than during the recessionary years (including 2009), resulting in lower traffic during 2009 (and perhaps increasing during the "recovery" of 2010-2011); and (ii) minor fluctuations in traffic counts can result from the time of year data is taken;

[4] The 2009 Addendum was prepared by Leonard Charles and Associates for the City of Lafayette as part of a proposed General Plan Amendment and Rezoning that ultimately was not adopted by the City. The 2009 Addendum was not certified or adopted by the City; however, certain background traffic data from the 2009 Addendum was reviewed by Abrams Associates to check results of this Study.

the methodology of the acquisition of data; the duration of each study and averages derived therefrom; and the interpretation/presentation of the data.

B. Scenario 2: Baseline Conditions

For purposes of this Study, for Scenario 2 (Baseline Conditions) Abrams Associates evaluated the existing traffic conditions (set forth in Scenario 1) together with the reasonably foreseeable projects in the area. The method used to project future year traffic for the baseline is based on the travel forecasts produced by the Central County ICMP computer traffic model. The County model includes trips generated in Lafayette as well as in nearby jurisdictions. The traffic projection procedures are described in detail in the Lafayette General Plan 2002 EIR.

At least two new relatively small residential projects have been identified within the study area, including the Mt. Diablo Court multi-family housing project; and a similar project on the Hungry Hunter site. These projects individually will not have significant traffic impacts; however there is expected to be continuous growth in the through traffic on Pleasant Hill Road given its regional nature. The trips added for the Baseline traffic are assumed to be at a growth rate of one-and-one-half percent per year, based on standard practice. However, based on the lack of historical growth in Lafayette and the surrounding area, and the fact that traffic actually decreased between 2002 and 2009, Abrams Associates believes that growth rate is overstated – and as a result, service levels for any scenario including this assumption is likely to be overstated.

Figure 6 shows the estimated Baseline AM and PM peak hour volumes. **Table 5**, below, summarizes the associated LOS computation results for the Baseline weekday AM and PM peak hour conditions (the corresponding LOS analysis calculation sheets are presented in **Appendix Section 1**). As shown in **Table 5**, all of the signalized study intersections would continue to have acceptable conditions (LOS "D" or better) during the weekday AM and PM peak hours.

TABLE 5
BASELINE INTERSECTION LEVEL OF SERVICE CONDITIONS

INTERSECTION		CONTROL	PEAK HOUR	EXISTING	
				DELAY (sec/veh)	LOS
1	Pleasant Hill Road and Rancho View Drive	Traffic Signal	AM	3.8	A
			PM	8.7	A
2	Pleasant Hill Road and Green Valley Drive	Traffic Signal	AM	5.9	A
			PM	9.5	A
3	Pleasant Hill Road and Reliez Valley Road	Traffic Signal	AM	12.4	B
			PM	10.6	B
4	Pleasant Hill Road and Springhill Road/Quandt Road	Traffic Signal	AM	9.6	A
			PM	8.1	A
5	Pleasant Hill Road and Deer Hill Road/Stanley Boulevard	Traffic Signal	AM	26.9	C
			PM	51.1	D
6	Pleasant Hill Road and Mt Diablo Blvd/EB Hwy 24 On-ramp	Traffic Signal	AM	19.5	B
			PM	22.9	C
7	Pleasant Hill Road and EB Hwy 24 Off-ramp/Old Tunnel Road	Traffic Signal	AM	9.8	A
			PM	11.5	B

8	Deer Hill Road and Brown Avenue	Stop Sign Control	AM PM	163.9 172.9	F F

SOURCE: Abrams Associates, 2011

NOTE: At traffic signals, the delay is the average for all vehicles at the intersection, and is presented in terms of seconds per vehicle. At an unsignalized intersection (stop sign), the delay is for the most critical single movement.

The results of these baseline traffic conditions are that there are small changes in the average delay, but not enough change to affect the Levels of Service.[5]

C. Scenario 3: Baseline Conditions Plus Project Traffic

For purposes of this Study, for Scenario 3 (Baseline Conditions Plus Project Traffic) Abrams Associates added the Project-generated traffic volumes shown in **Figure 5** to the Baseline traffic volumes shown in **Figure 6**.

Figure 7 shows the Baseline Plus Project Traffic AM and PM peak hour volumes that were used in this Study to evaluate the turning movements at each study intersection.

Table 6 summarizes the LOS results for the Baseline Plus Project weekday AM and PM peak hour conditions (the corresponding LOS analysis calculation sheets are presented in the **Appendix Section 1**). **Table 6** assumes that the Project road and circulation improvements as set forth in Section IV of this Study are constructed. As shown in **Table 6**, the LOS ratings of all of the signalized study intersections would remain unaffected by the addition of Project traffic and would continue to operate at acceptable levels during AM and PM peak hours. (Project traffic would also have no effect on the LOS at Deer Hill Road and Brown Avenue since the intersection presently operates at an unsatisfactory LOS; however, the LOS could be improved with the addition of a traffic signal. At that point, the intersection would operate at an acceptable LOS.)

TABLE 6
BASELINE + PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS

INTERSECTION		CONTROL	PEAK HOUR	EXISTING	
				DELAY (sec/veh)	LOS
1	Pleasant Hill Road and Rancho View Drive	Traffic Signal	AM PM	3.7 8.8	A A
2	Pleasant Hill Road and Green Valley Drive	Traffic Signal	AM PM	6.0 9.5	A A
3	Pleasant Hill Road and Reliez Valley Road	Traffic Signal	AM PM	12.3 10.6	B B
4	Pleasant Hill Road and Springhill Road/Quandt Road	Traffic Signal	AM PM	9.7 8.1	A A

[5] The reader will note that in some cases in each of these Tables the Delay may decrease by a small amount (e.g., by .10) even with a small amount of additional assumed traffic. This anomaly occurs where the underlying model automatically shifts slightly.

5	Pleasant Hill Road and Deer Hill Road/Stanley Boulevard	Traffic Signal	AM PM	23.7 52.0	C D
6	Pleasant Hill Road and Mt Diablo Blvd/EB Hwy 24 On-ramp	Traffic Signal	AM PM	19.5 22.8	B C
7	Pleasant Hill Road and EB Hwy 24 Off-ramp/Old Tunnel Road	Traffic Signal	AM PM	9.7 11.4	A B
8	Deer Hill Road and Brown Avenue	Stop Sign Control	AM PM	182.5 202.5	F F

SOURCE: Abrams Associates, 2011

NOTE: At traffic signals, the delay is the average for all vehicles at the intersection is presented in terms of seconds per vehicle. At an unsignalized intersection, the delay is for the most critical single movement.

1. Conditions with Pedestrian Actuation

The City of Lafayette has requested that as part of this Study the AM peak hour intersection capacity conditions at Deer Hill Road be tested with the condition that there would be a pedestrian actuation during each signal phase. This would apply for the AM peak hour during the period when there is maximum activity in the vicinity of Acalanes High School. The results of this analysis are that the intersection will operate at LOS "C" with an average delay of 26.9 seconds per vehicle. (This is in comparison to the LOS "C", average vehicle delay of 23.7 seconds, which occurs with the normal calculations. It is more likely that there would be pedestrian actuation for only a few cycles during the AM peak hour which is the assumption which was used throughout this Study).

2. Roadway and Intersection Mitigation Measures

With the addition of Project traffic and the proposed Project road and circulation improvements along Pleasant Hill Road, all of the signalized intersection delay results are similar or less than without the Project, and meet the City of Lafayette and CCTA standards. The Pleasant Hill Road and Deer Hill/Stanley intersection will experience a significant (12%) reduction in delay during the AM peak hour, with the proposed project improvements. Therefore, no mitigation measures are required as a result of Project traffic.

3. Deer Hill Road/Brown Avenue Intersection

The Terraces project will add additional traffic volumes to this intersection, as much as 33 vehicles per hour (total both directions) during the PM peak hour. This intersection is currently a two-way stop with the stops on Brown Avenue, and *could* meet the warrants for the installation of a traffic signal. However, there are a number of competing factors at this location. The traffic signal could provide some speed control for speeding cars on Deer Hill Road. Should a traffic signal be installed by the City of Lafayette, the project should make a fair share contribution.

4. Internal Circulation and Access

Abrams Associates has worked with the site planner to layout an effective internal circulation system. No internal site circulation or access issues have been identified that would

cause a traffic safety problem or any unusual traffic congestion or delay. It should be noted that the volumes on the internal roadways would be light enough so that no significant conflicts would be expected with vehicles backing out of the garages and/or parking spaces within the project.

5. Capacity Impacts at Project Driveways

Table 7 shows the results of the intersection capacity studies at the three driveways that serve the project. On Pleasant Hill Road, there will be a left turn lane for entering traffic, but the outbound left turn would be prohibited. The LOS is calculated to be "C" under this condition. There are more than enough gaps in the through traffic so the movement can operate without delay.

TABLE 7
LEVEL OF SERVICE CONDITIONS AT PROJECT DRIVEWAYS
(Existing plus project traffic)

INTERSECTION		CONTROL	PEAK HOUR	Existing + Project	
				DELAY (sec/veh)	LOS
1	Project Entrance on Pleasant Hill Road	Stop Sign Control	AM	14.5	B
			PM	10.9	B
2	Project Driveway (East) on Deer Hill Road	Stop Sign Control	AM	18.1	C
			PM	21.2	C
3	Project Driveway (West) on Deer Hill Road (Top of the Hill)	Stop Sign Control	AM	13.6	C
			PM	18.2	C

The project driveways on Deer Hill Road will all operate at acceptable Levels of Service and will not cause any capacity or safety issues on the major street. At the Pleasant Hill Road driveway, the inbound left turn results in a significant improvement at Deer Hill Road by removing potential left turns and U-turns.

6. Parking

The proposed project would provide an adequate supply of off-street parking based on the City's requirements. A total of 569 parking spaces are provided which equates to a parking ratio of 1.81 spaces per unit. This is consistent with other nearby projects and meets the City zoning standards.

D. Scenario 4: Cumulative Conditions

For purposes of this Study, for Scenario 4 (Cumulative Conditions) Abrams Associates evaluated the intersection traffic volumes based on the existing turning movements plus the addition of growth forecast by the County's traffic model. For this analysis the 2030 cumulative traffic volumes were developed by applying a 0.55%/year increase to the background traffic volumes. The cumulative analyses below include results: (i) without the Project; and (ii) with the Project and its traffic and circulation improvements (using HCM and CCTA methodology).

1. Cumulative without Project

Figure 8 shows the cumulative AM and PM peak hour traffic volumes at each of the project study intersections without the Project.

Table 8 summarizes the associated LOS computation results for the cumulative (year 2030) weekday AM and PM peak hour traffic conditions without the Project. The corresponding LOS analysis calculation sheets are presented in **Appendix Section 1**.

As shown in **Table 8**, all of the signalized study intersections would continue to have acceptable conditions (LOS "D" or better) during the weekday AM and PM peak hours, with the exception of Pleasant Hill Road and Deer Hill Road/Stanley Boulevard during the PM peak hour.

TABLE 8
CUMULATIVE (2030) INTERSECTION LEVEL OF SERVICE CONDITIONS
(without Project)

INTERSECTION		CONTROL	PEAK HOUR	CUMULATIVE (2030)	
				DELAY (sec/veh)	LOS
1	Pleasant Hill Road and Rancho View Drive	Traffic Signal	AM	4.1	A
			PM	12.1	B
2	Pleasant Hill Road and Green Valley Drive	Traffic Signal	AM	6.6	A
			PM	14.1	B
3	Pleasant Hill Road and Reliez Valley Road	Traffic Signal	AM	15.0	B
			PM	11.8	B
4	Pleasant Hill Road and Springhill Road/Quandt Road	Traffic Signal	AM	12.6	B
			PM	8.3	A
5	Pleasant Hill Road and Deer Hill Road/Stanley Boulevard	Traffic Signal	AM	32.1	C
			PM	71.1	E
6	Pleasant Hill Road and Mt Diablo Blvd/EB Hwy 24 On-ramp	Traffic Signal	AM	20.2	C
			PM	24.0	C
7	Pleasant Hill Road and EB Hwy 24 Off-ramp/Old Tunnel Road	Traffic Signal	AM	10.2	B
			PM	12.2	B
8	Deer Hill Road and Brown Avenue	Stop Sign Control	AM	295.3	F
			PM	353.4	F

SOURCE: Abrams Associates, 2011

NOTE: At traffic signals, the delay is the average for all vehicles at the intersection is presented in terms of seconds per vehicle. At an unsignalized intersection, the delay is for the most critical single movement.

2. Cumulative with the Project

Table 9 summarizes the associated LOS computation results for the Cumulative (Year 2030) weekday AM and PM peak hour traffic conditions with the Project and its traffic and circulation improvements. The corresponding LOS analysis calculation sheets are presented in the **Appendix Section 1**.

As shown in **Table 9**, all of the signalized study intersections would continue to have acceptable conditions (LOS "D" or better) during the weekday AM and PM peak hours, again with the exception of Pleasant Hill Road and Deer Hill Road/Stanley Boulevard during the PM peak hour. However, the Project will not contribute to such degradation of level of service. The Project, with its traffic and circulation improvements, will improve traffic and circulation at this intersection, and will lessen the severity of any future degradation of Level of Service based on future, cumulative traffic.

TABLE 9
CUMULATIVE (2030) LEVEL OF SERVICE CONDITIONS (with Project)

INTERSECTION		CONTROL	PEAK HOUR	CUMULATIVE (2030)	
				DELAY (sec/veh)	LOS
1	Pleasant Hill Road and Rancho View Drive	Traffic Signal	AM	4.0	A
			PM	12.2	B
2	Pleasant Hill Road and Green Valley Drive	Traffic Signal	AM	6.6	A
			PM	14.2	B
3	Pleasant Hill Road and Reliez Valley Road	Traffic Signal	AM	15.0	B
			PM	11.9	B
4	Pleasant Hill Road and Springhill Road/Quandt Road	Traffic Signal	AM	12.6	B
			PM	8.3	A
5	Pleasant Hill Road and Deer Hill Road/Stanley Boulevard	Traffic Signal	AM	30.1	C
			PM	69.4	E
6	Pleasant Hill Road and Mt Diablo Blvd/EB Hwy 24 On-ramp	Traffic Signal	AM	20.2	C
			PM	24.0	C
7	Pleasant Hill Road and EB Hwy 24 Off-ramp/Old Tunnel Road	Traffic Signal	AM	10.1	B
			PM	12.2	B
8	Deer Hill Road and Brown Avenue	Stop Sign Control	AM	324.3	F
			PM	406.5	F

3. Cumulative Capacity Using the CCTA Methodology

Table 10 shows the results of the intersection Capacity Calculations using the CCTA calculation procedures. This methodology is based on the results being reported in terms of volume to capacity ratio (v/c ratio), and generally shows less critical results than the HCM Methodology. (See **Appendix Section 2**.)

TABLE 10
CUMULATIVE (2030) LEVEL OF SERVICE CONDITIONS WITH THE PROJECT
Using the CCTA Methodology

INTERSECTION		CONTROL	PEAK HOUR	CUMULATIVE	
				Vol/Capacity	LOS
1	Pleasant Hill Road and Rancho View Drive	Traffic Signal	AM	.486	A
			PM	.674	B
2	Pleasant Hill Road and Green Valley Drive	Traffic Signal	AM	.528	A
			PM	.664	B

3	Pleasant Hill Road and Reliez Valley Road	Traffic Signal	AM PM	.619 .659	B B
4	Pleasant Hill Road and Springhill Road/Quandt Road	Traffic Signal	AM PM	.741 .738	C C
5	Pleasant Hill Road and Deer Hill Road/Stanley Boulevard	Traffic Signal	AM PM	.725 .913	C E
6	Pleasant Hill Road and Mt Diablo Blvd/EB Hwy 24 On-ramp	Traffic Signal	AM PM	.457 .603	A B
7	Pleasant Hill Road and EB Hwy 24 Off-ramp/Old Tunnel Road	Traffic Signal	AM PM	.552 .678	A B
8	Deer Hill Road and Brown Avenue	Stop Sign Control	AM PM	N/A	N/A

SOURCE: Abrams Associates, 2011

NOTE: At traffic signals, the results are presented in terms of volume to capacity ratios. This methodology is not applicable to unsignalized intersections.

The data on cumulative impacts shows that the cumulative impacts of development in the area to the year 2030 will continue to degrade the Level of Service of the intersection of Pleasant Hill Road and Deer Hill Road/Stanley Boulevard. However, the Project will not contribute to such degradation of level of service. The Project, with its traffic and circulation improvements, will improve traffic and circulation at this intersection, and will lessen the severity of any future degradation of Level of Service based on future, cumulative traffic.

4. Deer Hill Road and Brown Avenue

As set forth in this Study, the Deer Hill Road and Brown Avenue intersection, which is unsignalized, operates at LOS "F" under all Scenarios (Existing through Cumulative conditions). This condition will continue with or without the Project and the Project's traffic and circulation improvements. This condition could be addressed with the construction of a traffic signal.

5. State Highway 24

The addition of traffic to State Highway 24 is problematic. State Highway 24 is impacted by regional traffic and regulated in all aspects by the State of California. The addition of Project traffic to State Highway 24 cannot be deemed to have a significant adverse impact because State Highway 24 collects and transports traffic to and from so many different jurisdictions that it is impossible for any individual project - or even jurisdiction - to effectively mitigate traffic impacts. Essentially, existing and future conditions of traffic on State Highway 24 will not be impacted in any measurable or meaningful way by traffic generated to or from this Project.

VI. FINDINGS AND CONCLUSIONS

While a total of eight (8) intersections and several roadways are analyzed in this Study, it is clear that the area with the greatest potential for impacts from Project traffic is along Pleasant Hill Road, and specifically the Pleasant Hill Road and Deer Hill Road/Stanley Boulevard

intersection. Currently, the Pleasant Hill Road and Deer Hill Road/Stanley Boulevard intersection operates at an acceptable Level of Service during both the AM and PM peak hours. However, there is a concern regarding future traffic travelling southbound through the intersection during the AM peak hour, and northbound through the intersection during the PM peak hour. Without the Project, such increasing traffic (from future build-out within the City) is expected to eventually degrade the referenced Level of Service.

With the construction of the Project's proposed road and circulation improvements, the additional Project traffic will not have a significant impact on existing traffic levels and the Pleasant Hill Road and Deer Hill Road/Stanley Boulevard intersection.

The Project, with the proposed road and circulation improvements, will significantly improve the traffic conditions along Pleasant Hill Road and at the Pleasant Hill Road and Deer Hill Road/Stanley Boulevard Intersection. This is primarily due to the construction of the additional southbound through-lane along Pleasant Hill Road.

The Project, with the proposed road and circulation improvements, is consistent with the standards set by the Contra Costa Transportation Authority, and specifically the Multi-modal Transportation Service Objectives (MTSOs) as listed in the Lamorinda Action Plan and the Pleasant Hill Road Action Plan.

The data on cumulative impacts shows that the cumulative impacts of development in the area to the year 2030 will continue to degrade the level of service of the intersection of Pleasant Hill Road and Deer Hill Road/Stanley Boulevard. However, the Project will not contribute to such degradation of level of service. The Project, with its road and circulation improvements, will improve traffic and circulation at this intersection, and will lessen the severity of any future degradation of level of service based on future, cumulative traffic.

The Deer Hill Road and Brown Avenue intersection, which is unsignalized, operates at LOS "F" under all Scenarios (Existing through Cumulative conditions). This condition will continue with our without the Project and the Project's traffic and circulation improvements. This condition could be addressed with the construction of a traffic signal.

State Highway 24 is impacted by regional traffic and regulated in all aspects by the State of California. The addition of Project traffic to State Highway 24 cannot be deemed to have a significant adverse impact because State Highway 24 collects and transports traffic to and from so many different jurisdictions that it is impossible for any individual project - or even jurisdiction - to effectively mitigate traffic impacts. Essentially, existing and future conditions of traffic on State Highway 24 will not be impacted in any measurable or meaningful way by traffic generated to or from this Project.

For these and other reasons set forth in this Study, the Project traffic will not have a significant adverse effect or impact on existing and future traffic conditions.

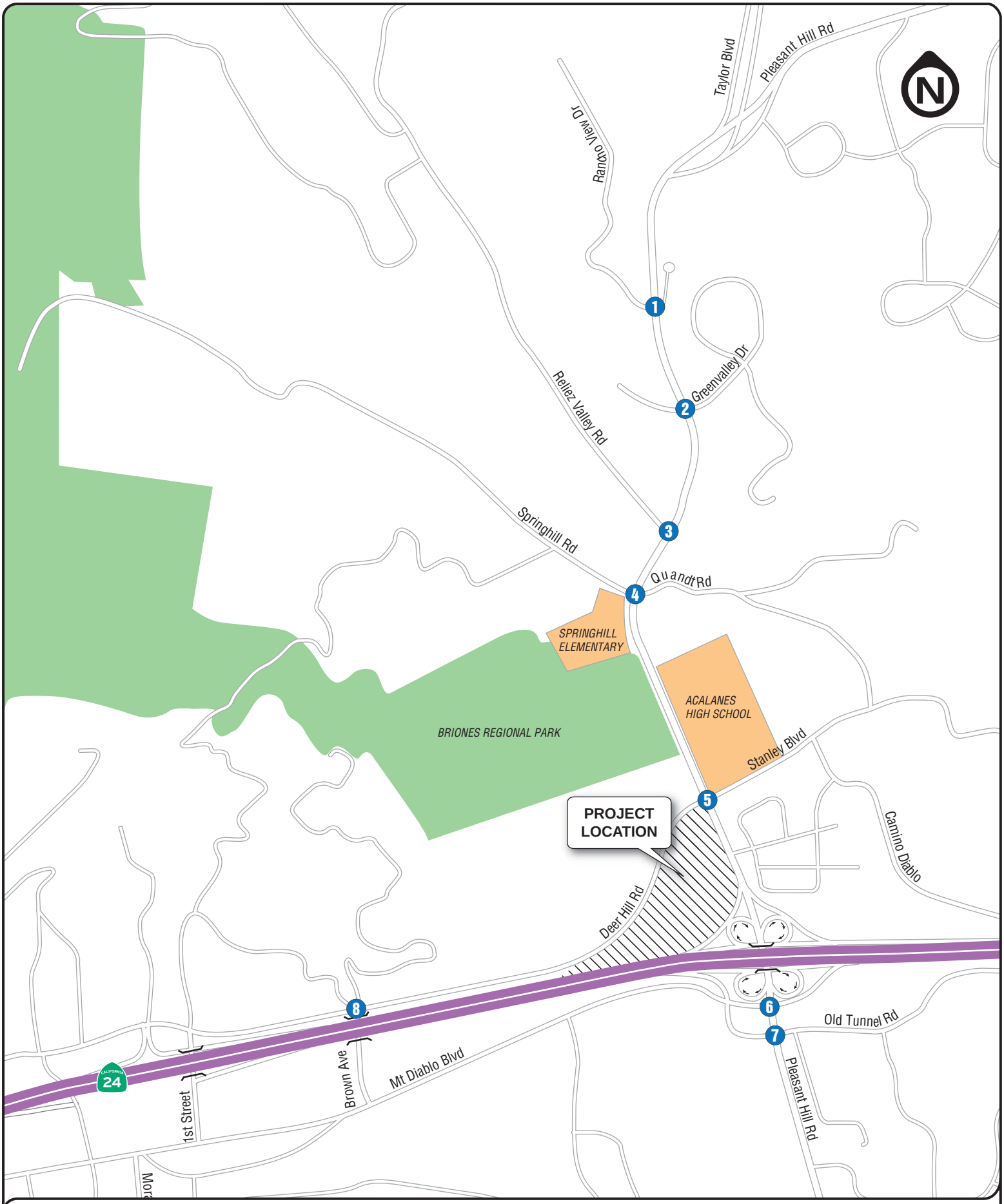


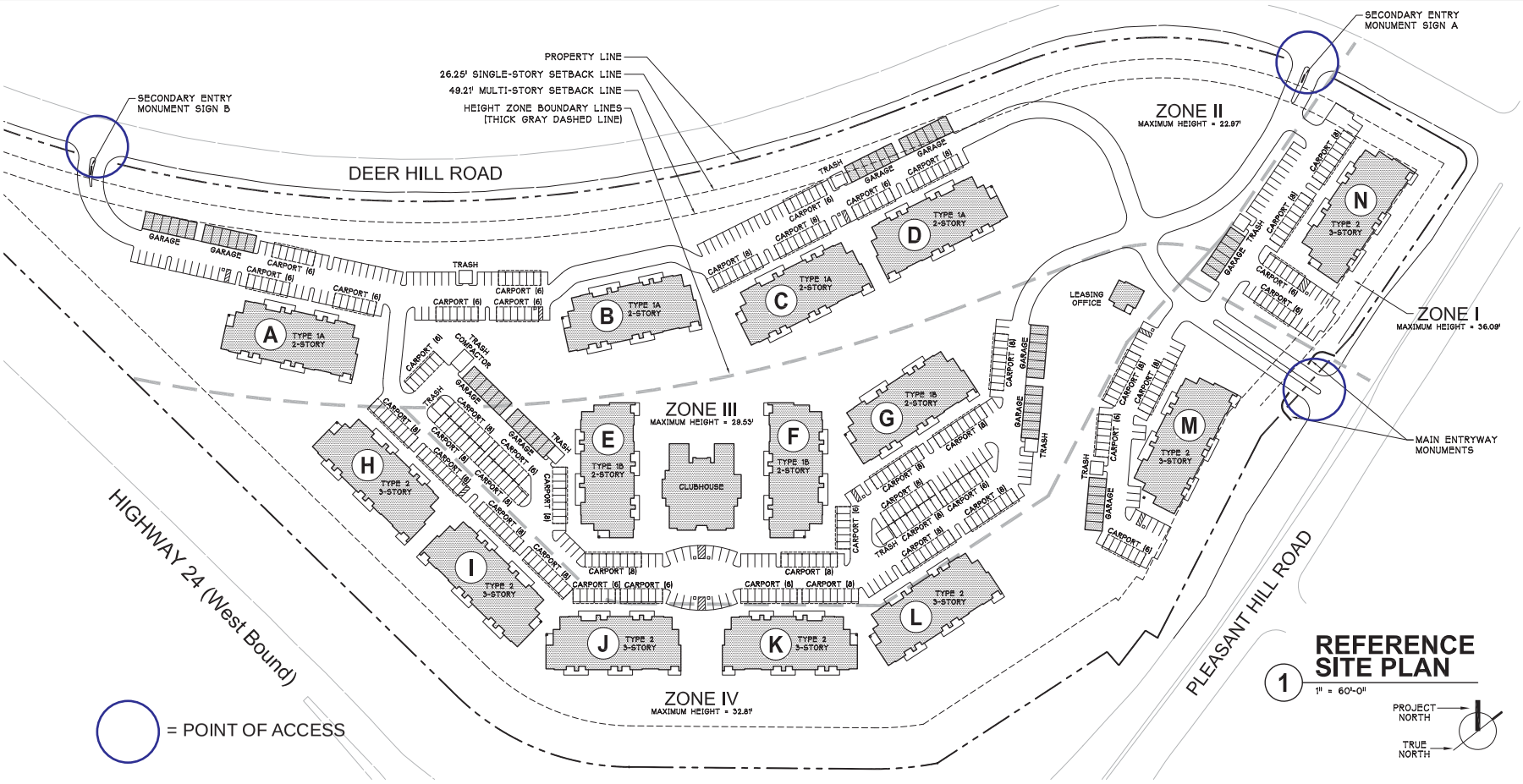
FIGURE 1 | PROJECT LOCATION

TRAFFIC IMPACT STUDY

The Terraces of Lafayette

City of Lafayette

Abrams Associates
TRAFFIC ENGINEERING, INC.



REFERENCE SITE PLAN

1 1" = 60'-0"

PROJECT DATA

SITE AREA	970,272 SF	(22.27 ACRES)
TOTAL FLOOR AREA	410,547 SF	(INCLUDING ACCESSORY STRUCTURES)
TOTAL BUILDING FOOTPRINT	204,832 SF	(INCLUDING ACCESSORY STRUCTURES)
COVERAGE	21.11%	(INCLUDING ACCESSORY STRUCTURES)
NUMBER OF UNITS	315	
DENSITY	14.1 UNITS/ ACRES	

PARKING

RESIDENTIAL UNIT TYPE	REQUIRED PARKING RATIO	UNITS	REQUIRED PARKING STALLS
1-BDR	1.2	140	168
2-BDR	1.5	140	210
3-BDR	2.0	35	70
GUEST	0.2	315	63
TOTAL	511 STALLS REQUIRED (BASED ON M-R-B)		
RATIO	1.62 PER UNIT		

PARKING SUMMARY

GARAGES	60
CARPORTS	316
UNCOVERED	193
TOTAL	569 STALL PROVIDED (INCLUDES 12 ACCESSIBLE)
RATIO	1.81 PER UNIT

BUILDING DATA & UNIT COUNTS

DESCRIPTION	1ST FLOOR AREA (SF)	2ND FLOOR AREA (SF)	3RD FLOOR AREA (SF)	TOTAL AREA (SF)	BLDG. TYPE	MAX. HEIGHT (FEET)
APARTMENT A	9,425	9,545	---	18,970	1A	22.97'
APARTMENT B	9,425	9,545	---	18,970	1A	22.97'
APARTMENT C	9,425	9,545	---	18,970	1A	22.97'
APARTMENT D	9,425	9,545	---	18,970	1A	22.97'
APARTMENT E	9,425	9,545	---	18,970	1B	28.53'
APARTMENT F	9,425	9,545	---	18,970	1B	28.53'
APARTMENT G	9,425	9,545	---	18,970	1B	28.53'
APARTMENT H	9,425	9,545	9,545	28,515	2	32.81'
APARTMENT I	9,425	9,545	9,545	28,515	2	32.81'
APARTMENT J	9,425	9,545	9,545	28,515	2	32.81'
APARTMENT K	9,425	9,545	9,545	28,515	2	32.81'
APARTMENT L	9,425	9,545	9,545	28,515	2	32.81'
APARTMENT M	9,425	9,545	9,545	28,515	2	32.81'
APARTMENT N	9,425	9,545	9,545	28,515	2	36.09'
SUBTOTAL	131,950	133,630	66,815	332,395 SF		
CLUBHOUSE	8,030	5,270	---	13,300	---	28.53'
LEASING OFFICE	950	---	---	950	---	28.53'
TOTAL	140,930	138,900	66,815	346,645 SF		

DESCRIPTION	NUMBER	AREA (SF)	TOTAL AREA (SF)
GARAGES	10	1,330	13,300
8-CAR CARPORTS	26	1,224	31,824
6-CAR CARPORTS	18	918	16,524
TRASH ENCLOSURE	8	237	1,896
TRASH COMPACTOR	1	358	358
TOTAL			63,902 SF

BUILDING TYPE	STORIES	1-BDR	2-BDR	3-BDR	TOTAL UNITS PER BLDG. TYPE
1A	TWO	8	8	2	18
1B	TWO	8	8	2	18
2	THREE	12	12	3	27

BUILDING TYPE	AMOUNT	1-BDR	2-BDR	3-BDR	TOTAL UNITS FOR PROJECT
1A	4	32	32	8	---
1B	3	24	24	6	---
2	7	84	84	21	---
TOTALS	14	140	140	35	315
PROJECT MIX	---	44.4%	44.4%	11.1%	100.0%

LCA ARCHITECTS
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(925) 944-1626 | (925) 944-1666 FAX | WWW.LCA-ARCHITECTS.COM

DEER HILL APARTMENT HOMES
DEER HILL ROAD, LAFAYETTE, CALIFORNIA

REFERENCE SITE PLAN

SCALE: 1" = 60'-0"
DATE: 3 / 21 / 2011
REVISIONS:

PROJECT NO. 10050

A0.1

SHEET OF

FIGURE 2 | SITE PLAN
TRAFFIC IMPACT STUDY
The Terraces of Lafayette
City of Lafayette

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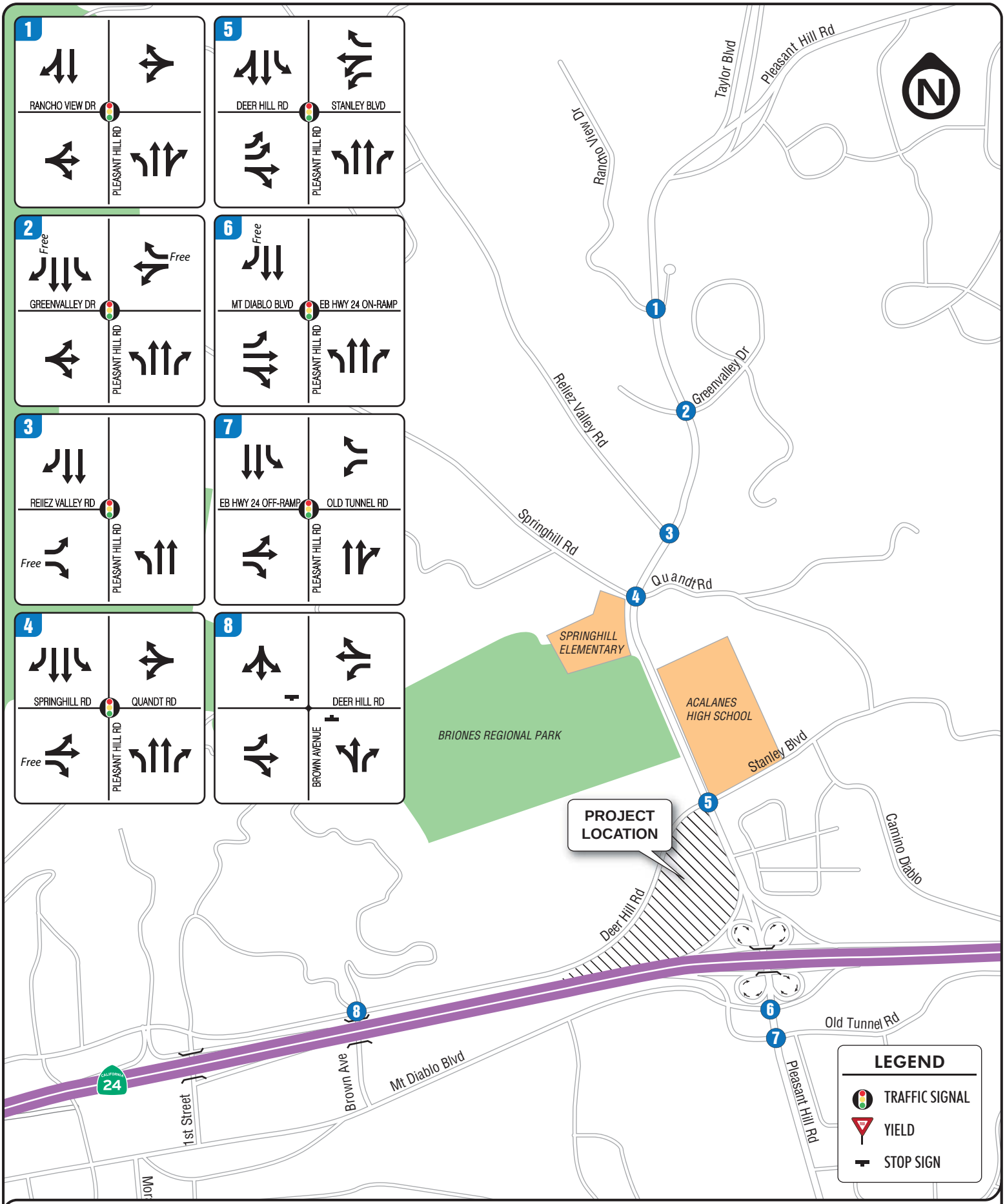

FIGURE 3 | EXISTING LANE CONFIGURATIONS
TRAFFIC IMPACT STUDY
The Terraces of Lafayette
City of Lafayette

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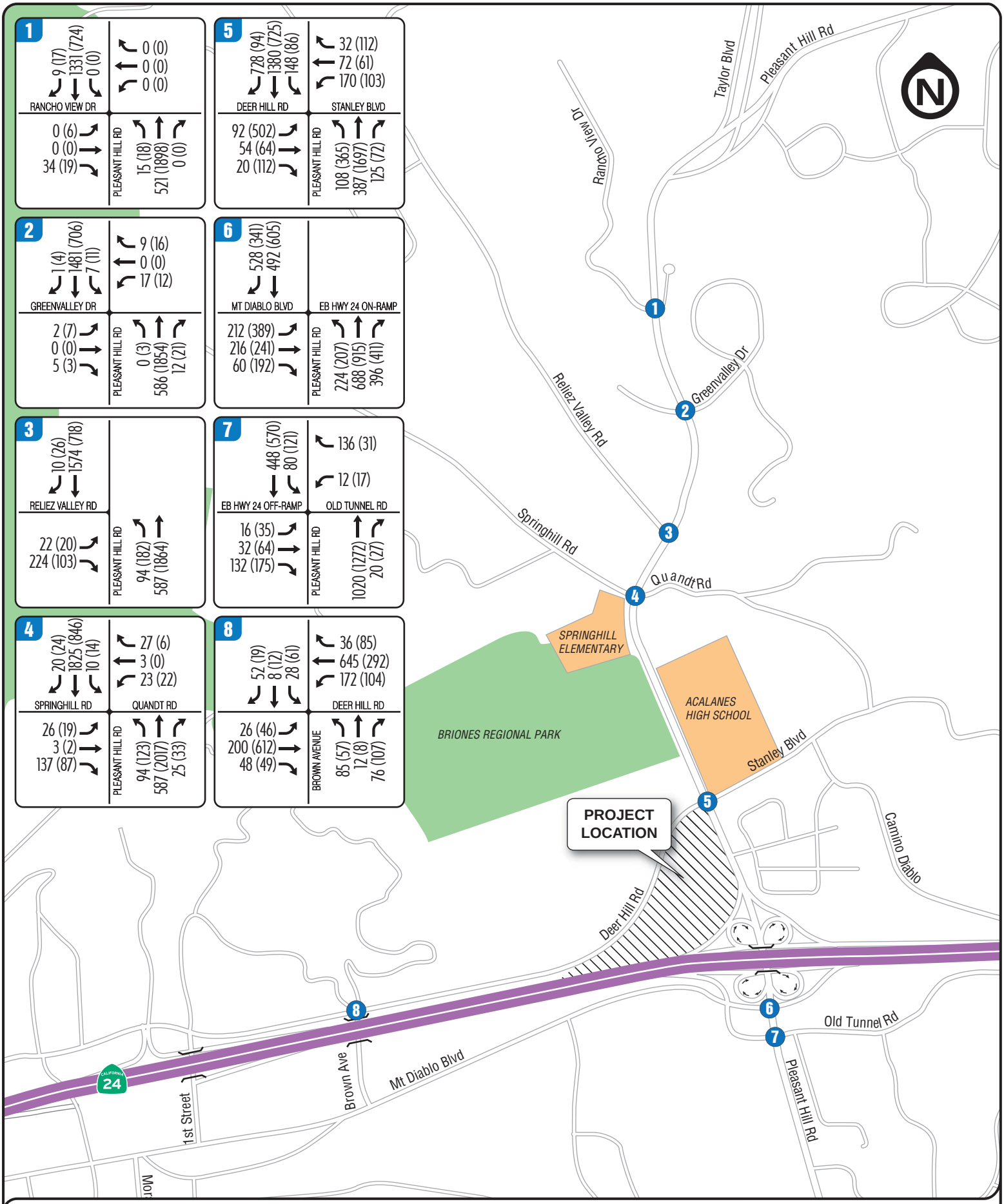

FIGURE 4 | EXISTING AM (PM) PEAK HOUR VOLUMES

TRAFFIC IMPACT STUDY

The Terraces of Lafayette

City of Lafayette

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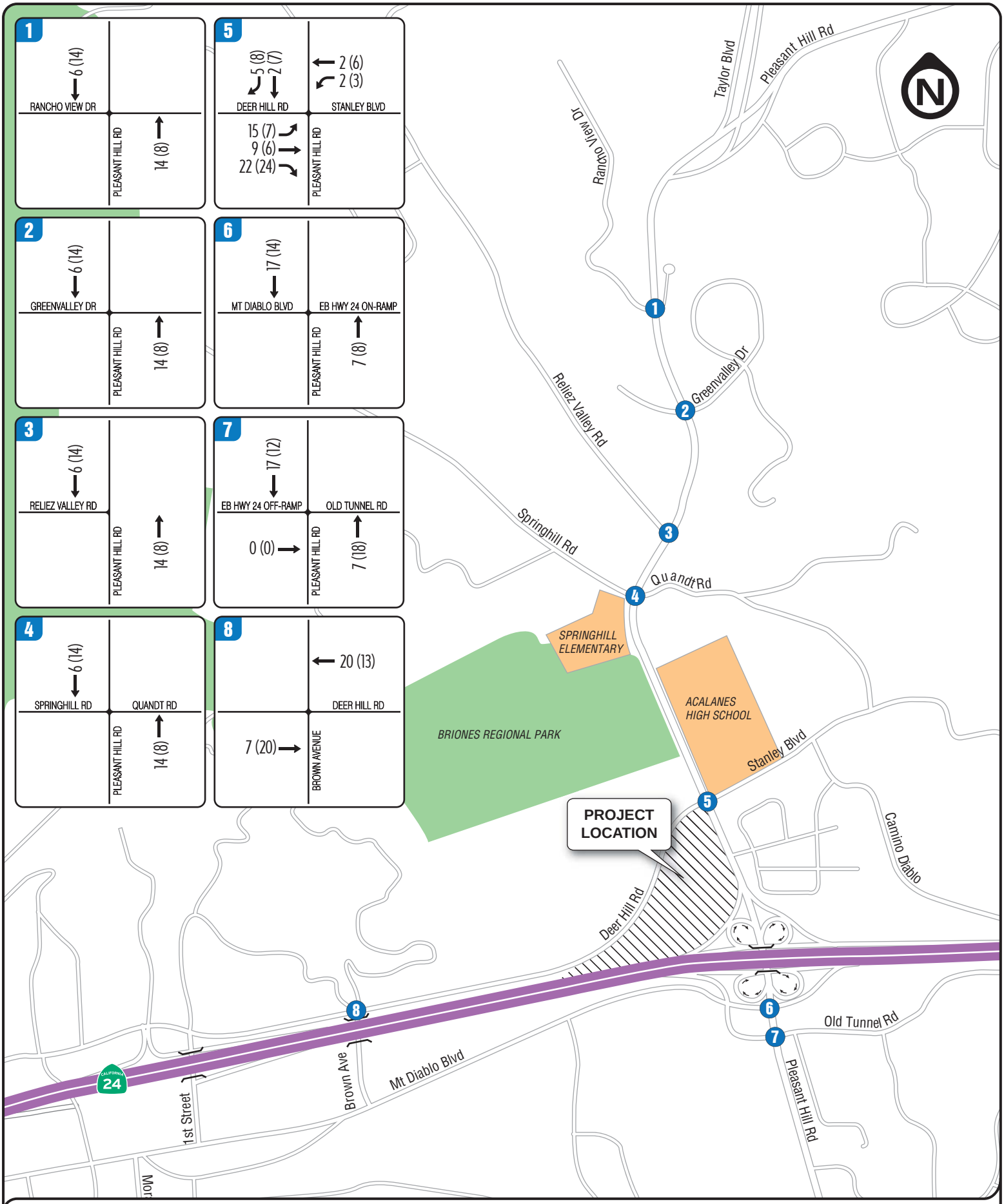

FIGURE 5 | PROJECT TRIP GENERATION
TRAFFIC IMPACT STUDY
The Terraces of Lafayette
City of Lafayette

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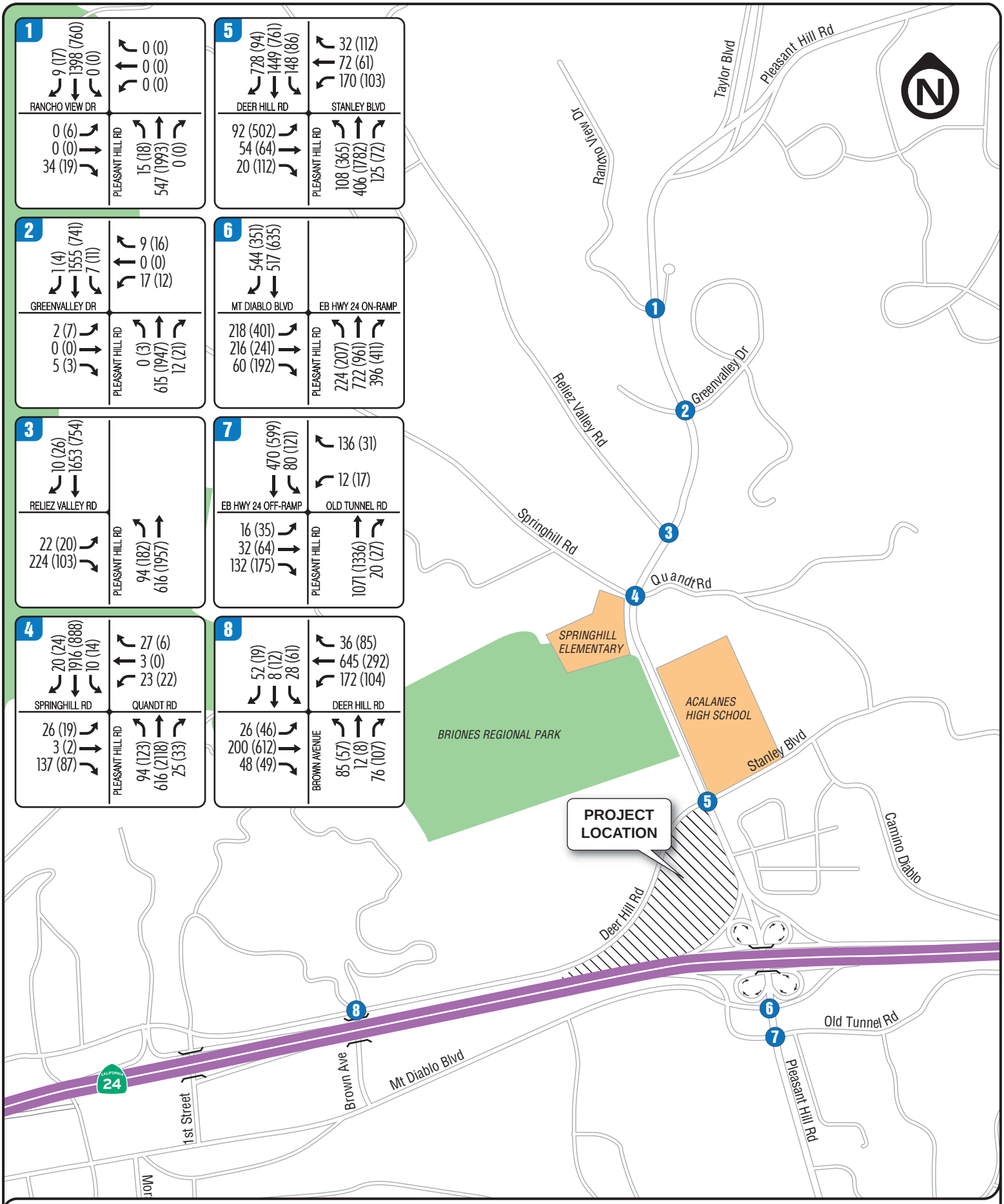

FIGURE 6 | BASELINE AM (PM) PEAK HOUR VOLUMES

TRAFFIC IMPACT STUDY

The Terraces of Lafayette

City of Lafayette

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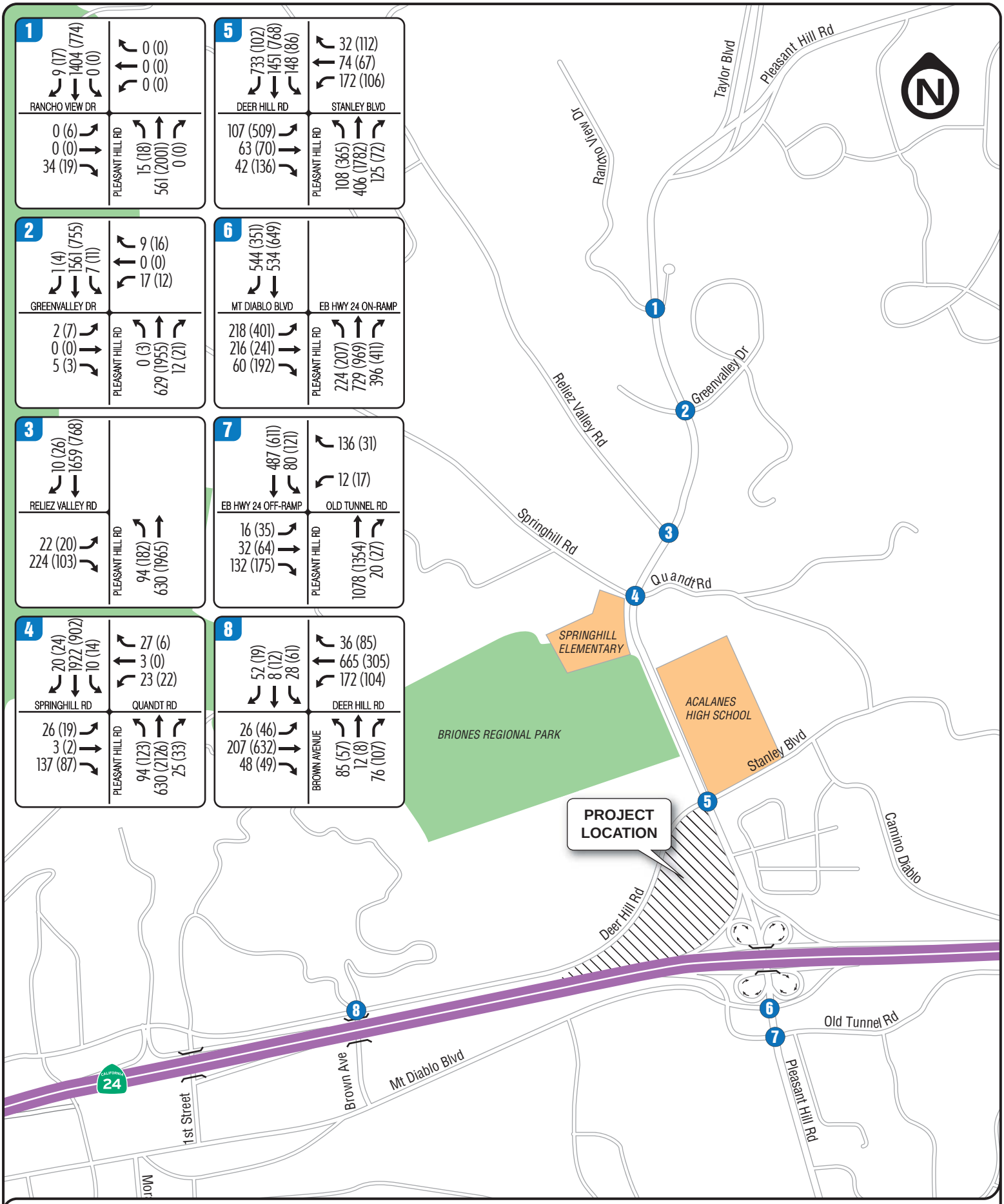

FIGURE 7 | BASELINE PLUS PROJECT AM (PM) PEAK HOUR VOLUMES

TRAFFIC IMPACT STUDY

The Terraces of Lafayette

City of Lafayette

Abrams Associates
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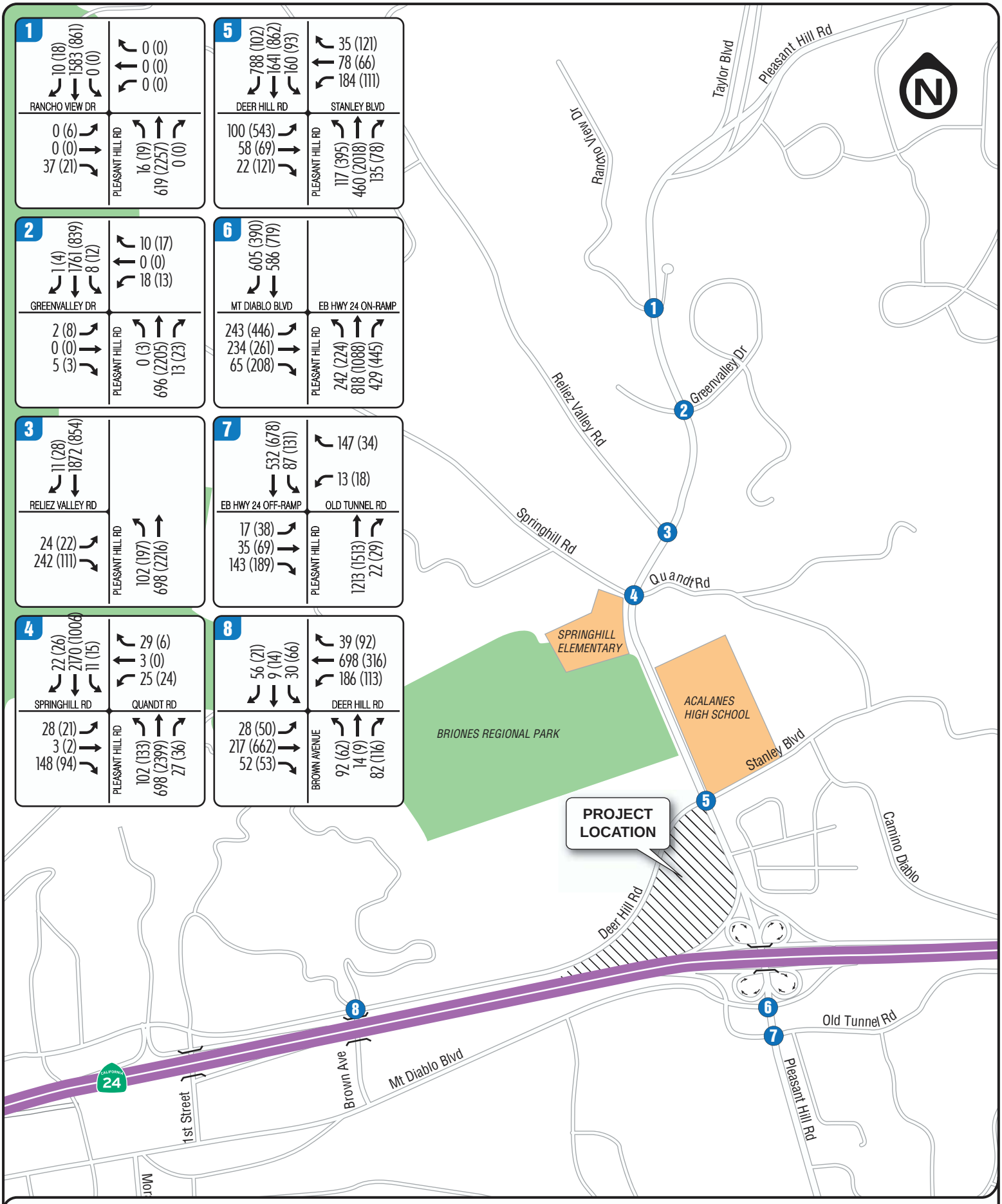

FIGURE 8 | CUMULATIVE AM (PM) PEAK HOUR VOLUMES

TRAFFIC IMPACT STUDY

The Terraces of Lafayette

City of Lafayette

Abrams Associates
TRAFFIC ENGINEERING, INC.

TECHNICAL APPENDIX

THE TERRACES OF LAFAYETTE

Prepared by:
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1875 Olympic Boulevard, Suite 210
Walnut Creek, CA 94596
Tel: 925.945.0201

Abrams Associates
TRAFFIC ENGINEERING, INC.

June, 2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	
Lane Util. Factor		1.00					1.00	0.95			0.95	
Frt		0.86					1.00	1.00			1.00	
Flt Protected		1.00					0.95	1.00			1.00	
Satd. Flow (prot)		1611					1770	3539			3536	
Flt Permitted		1.00					0.95	1.00			1.00	
Satd. Flow (perm)		1611					1770	3539			3536	
Volume (vph)	0	0	34	0	0	0	15	521	0	0	1331	9
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	37	0	0	0	16	566	0	0	1447	10
RTOR Reduction (vph)	0	36	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1	0	0	0	0	16	566	0	0	1457	0
Turn Type	Prot			Prot			Prot					
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases												
Actuated Green, G (s)		3.3					3.1	98.7			91.6	
Effective Green, g (s)		3.3					3.1	98.7			91.6	
Actuated g/C Ratio		0.03					0.03	0.90			0.83	
Clearance Time (s)		4.0					4.0	4.0			4.0	
Vehicle Extension (s)		3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)		48					50	3175			2945	
v/s Ratio Prot		c0.02					c0.01	0.16			c0.41	
v/s Ratio Perm												
v/c Ratio		0.02					0.32	0.18			0.49	
Uniform Delay, d1		51.8					52.4	0.7			2.6	
Progression Factor		1.00					0.81	0.73			1.00	
Incremental Delay, d2		0.2					3.6	0.1			0.6	
Delay (s)		52.0					46.3	0.6			3.2	
Level of Service		D					D	A			A	
Approach Delay (s)		52.0			0.0			1.9			3.2	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM Average Control Delay	3.7	HCM Level of Service		A
HCM Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	47.1%	ICU Level of Service		A
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00	1.00		0.95	1.00	1.00	0.95	1.00
Frt		0.90			1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.95	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1659			1770	1583		3539	1583	1770	3539	1583
Flt Permitted		0.96			0.75	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1618			1403	1583		3539	1583	1770	3539	1583
Volume (vph)	2	0	5	17	0	9	0	586	12	7	1481	1
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	0	5	18	0	10	0	637	13	8	1610	1
RTOR Reduction (vph)	0	4	0	0	0	8	0	0	4	0	0	0
Lane Group Flow (vph)	0	3	0	0	18	2	0	637	9	8	1610	1
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)		16.8			16.8	16.8		80.0	80.0	1.2	85.2	85.2
Effective Green, g (s)		16.8			16.8	16.8		80.0	80.0	1.2	85.2	85.2
Actuated g/C Ratio		0.15			0.15	0.15		0.73	0.73	0.01	0.77	0.77
Clearance Time (s)		4.0			4.0	4.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		247			214	242		2574	1151	19	2741	1226
v/s Ratio Prot								0.18		0.00	c0.45	
v/s Ratio Perm		0.00			c0.01	0.01			0.01			0.00
v/c Ratio		0.01			0.08	0.01		0.25	0.01	0.42	0.59	0.00
Uniform Delay, d1		39.6			40.0	39.5		5.0	4.1	54.1	5.1	2.8
Progression Factor		1.00			1.00	1.00		1.24	1.84	1.23	0.68	0.83
Incremental Delay, d2		0.0			0.2	0.0		0.2	0.0	13.3	0.9	0.0
Delay (s)		39.6			40.2	39.5		6.4	7.6	79.7	4.4	2.3
Level of Service		D			D	D		A	A	E	A	A
Approach Delay (s)		39.6			39.9			6.4			4.7	
Approach LOS		D			D			A			A	

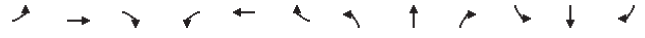
Intersection Summary				
HCM Average Control Delay	5.7	HCM Level of Service		A
HCM Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	50.9%	ICU Level of Service		A
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	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)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Volume (vph)	22	224	94	587	1574	10
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	243	102	638	1711	11
RTOR Reduction (vph)	0	180	0	0	0	3
Lane Group Flow (vph)	24	63	102	638	1711	8
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	10.1	10.1	11.2	91.9	76.7	76.7
Effective Green, g (s)	10.1	10.1	11.2	91.9	76.7	76.7
Actuated g/C Ratio	0.09	0.09	0.10	0.84	0.70	0.70
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	163	145	180	2957	2468	1104
v/s Ratio Prot	0.01		c0.06	0.18	c0.48	
v/s Ratio Perm		0.15				0.01
v/c Ratio	0.15	0.44	0.57	0.22	0.69	0.01
Uniform Delay, d1	46.0	47.3	47.1	1.8	9.8	5.1
Progression Factor	1.00	1.00	0.99	0.93	0.67	0.85
Incremental Delay, d2	0.4	2.1	4.0	0.2	1.4	0.0
Delay (s)	46.4	49.3	50.7	1.9	7.9	4.3
Level of Service	D	D	D	A	A	A
Approach Delay (s)	49.1			8.6	7.9	
Approach LOS	D			A	A	

Intersection Summary				
HCM Average Control Delay	12.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	64.0%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1782	1583		1698		1770	3539	1583	1770	3539	1583
Flt Permitted		0.74	1.00		0.85		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1378	1583		1473		1770	3539	1583	1770	3539	1583
Volume (vph)	26	3	137	23	3	27	94	587	25	10	1825	20
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	3	149	25	3	29	102	638	27	11	1984	22
RTOR Reduction (vph)	0	0	108	0	27	0	0	0	5	0	0	6
Lane Group Flow (vph)	0	31	41	0	30	0	102	638	22	11	1984	16
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)		8.9	8.9		8.9		10.3	87.9	87.9	1.2	78.8	78.8
Effective Green, g (s)		8.9	8.9		8.9		10.3	87.9	87.9	1.2	78.8	78.8
Actuated g/C Ratio		0.08	0.08		0.08		0.09	0.80	0.80	0.01	0.72	0.72
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
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)		111	128		119		166	2828	1265	19	2535	1134
v/s Ratio Prot							c0.06	0.18		0.01	c0.56	
v/s Ratio Perm		0.02	0.09		0.04				0.02			0.01
v/c Ratio		0.28	0.32		0.26		0.61	0.23	0.02	0.58	0.78	0.01
Uniform Delay, d1		47.5	47.7		47.4		47.9	2.7	2.3	54.1	10.1	4.5
Progression Factor		1.00	1.00		1.00		1.00	1.00	1.00	1.30	0.23	0.05
Incremental Delay, d2		1.4	1.5		1.1		6.6	0.2	0.0	28.2	1.9	0.0
Delay (s)		48.9	49.2		48.6		54.5	2.9	2.3	98.6	4.2	0.2
Level of Service		D	D		D		D	A	A	F	A	A
Approach Delay (s)		49.1			48.6			9.7			4.7	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	9.4	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	75.4%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		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	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	1787		1681	1733	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	1787		1681	1733	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	92	54	20	170	72	32	108	387	125	148	1380	728
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	59	22	185	78	35	117	421	136	161	1500	791
RTOR Reduction (vph)	0	14	0	0	0	31	0	0	68	0	0	308
Lane Group Flow (vph)	100	67	0	128	135	4	117	421	68	161	1500	483
Turn Type	Split			Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	9.4	9.4		13.5	13.5	13.5	9.6	53.5	53.5	14.6	58.5	58.5
Effective Green, g (s)	9.4	9.4		13.5	13.5	13.5	9.6	53.5	53.5	14.6	58.5	58.5
Actuated g/C Ratio	0.09	0.09		0.13	0.13	0.13	0.09	0.50	0.50	0.14	0.55	0.55
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)	302	157		212	219	200	159	1770	792	242	1935	865
v/s Ratio Prot	0.03	c0.05		0.08	c0.08		0.07	0.12		c0.09	0.42	
v/s Ratio Perm						0.02			0.09			0.50
v/c Ratio	0.33	0.43		0.60	0.62	0.02	0.74	0.24	0.09	0.67	0.78	0.56
Uniform Delay, d1	45.8	46.3		44.2	44.3	41.0	47.5	15.2	14.0	43.9	19.1	15.8
Progression Factor	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	0.6	1.9		4.8	5.1	0.0	16.2	0.3	0.2	6.7	3.1	2.6
Delay (s)	46.5	48.1		49.0	49.4	41.0	63.6	15.5	14.2	50.6	22.2	18.4
Level of Service	D	D		D	D	D	E	B	B	D	C	B
Approach Delay (s)		47.2			48.2			23.6			22.8	
Approach LOS		D			D			C			C	

Intersection Summary				
HCM Average Control Delay	26.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	107.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	67.7%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95					1.00	0.95	1.00		0.95	1.00
Frt	1.00	0.97					1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	3424					1770	3539	1583		3539	1583
Flt Permitted	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770	3424					1770	3539	1583		3539	1583
Volume (vph)	212	216	60	0	0	0	224	688	396	0	492	528
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)	230	235	65	0	0	0	243	748	430	0	535	574
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	80	0	0	312
Lane Group Flow (vph)	230	274	0	0	0	0	243	748	350	0	535	262
Turn Type	Prot						Prot		Perm			Perm
Protected Phases	7	4					5	2			6	
Permitted Phases									2			6
Actuated Green, G (s)	18.8	18.8					29.0	83.2	83.2		50.2	50.2
Effective Green, g (s)	18.8	18.8					29.0	83.2	83.2		50.2	50.2
Actuated g/C Ratio	0.17	0.17					0.26	0.76	0.76		0.46	0.46
Clearance Time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	303	585					467	2677	1197		1615	722
v/s Ratio Prot	c0.13	0.09					c0.14	0.21			0.15	
v/s Ratio Perm									0.27			0.36
v/c Ratio	0.76	0.47					0.52	0.28	0.29		0.33	0.36
Uniform Delay, d1	43.4	41.1					34.6	4.1	4.2		19.1	19.5
Progression Factor	1.00	1.00					0.99	0.77	0.40		1.00	1.00
Incremental Delay, d2	10.4	0.6					1.0	0.3	0.6		0.6	1.4
Delay (s)	53.9	41.7					35.3	3.4	2.3		19.7	20.9
Level of Service	D	D					D	A	A		B	C
Approach Delay (s)		47.0			0.0			8.5			20.3	
Approach LOS		D			A			A			C	

Intersection Summary				
HCM Average Control Delay	19.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.71			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	51.8%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

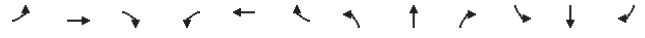
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.98	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1833	1583	1770		1583		3529		1770	3539	
Flt Permitted		0.98	1.00	0.72		1.00		1.00		0.24	1.00	
Satd. Flow (perm)		1833	1583	1347		1583		3529		446	3539	
Volume (vph)	16	32	132	12	0	136	0	1020	20	80	448	0
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)	17	35	143	13	0	148	0	1109	22	87	487	0
RTOR Reduction (vph)	0	0	131	0	0	96	0	0	0	0	0	0
Lane Group Flow (vph)	0	52	12	13	0	52	0	1131	0	87	487	0
Turn Type	Perm		Perm	custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		9.1	9.1	9.1		9.1		92.9		92.9	92.9	
Effective Green, g (s)		9.1	9.1	9.1		9.1		92.9		92.9	92.9	
Actuated g/C Ratio		0.08	0.08	0.08		0.08		0.84		0.84	0.84	
Clearance Time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		152	131	111		131		2980		377	2989	
v/s Ratio Prot								c0.32			0.14	
v/s Ratio Perm		0.03	0.09	0.01		0.09				0.20		
v/c Ratio		0.34	0.09	0.12		0.39		0.38		0.23	0.16	
Uniform Delay, d1		47.6	46.6	46.7		47.8		2.0		1.7	1.5	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.75	0.41	
Incremental Delay, d2		1.3	0.3	0.5		2.0		0.4		1.4	0.1	
Delay (s)		49.0	46.9	47.2		49.8		2.3		4.3	0.7	
Level of Service		D	D	D		D		A		A	A	
Approach Delay (s)		47.5			49.6			2.3			1.3	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	10.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.45			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	52.5%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	26	200	48	172	645	36	85	12	76	28	8	52
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)	28	217	52	187	701	39	92	13	83	30	9	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)												
pX, platoon unblocked												
vC, conflicting volume	740			270			1436	1414	243	1375	1421	721
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	740			270			1436	1414	243	1375	1421	721
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 %	97			86			0	89	90	65	92	87
cM capacity (veh/h)	866			1294			79	114	795	87	113	428

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	28	270	187	740	105	83	96
Volume Left	28	0	187	0	92	0	30
Volume Right	0	52	0	39	0	83	57
cSH	866	1700	1294	1700	82	795	171
Volume to Capacity	0.03	0.16	0.14	0.44	1.28	0.10	0.56
Queue Length (ft)	3	0	13	0	198	9	73
Control Delay (s)	9.3	0.0	8.3	0.0	284.5	10.1	49.7
Lane LOS	A		A		F	B	E
Approach Delay (s)	0.9		1.7		163.9		49.7
Approach LOS					F		E

Intersection Summary				
Average Delay	24.8			
Intersection Capacity Utilization	61.5%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	
Lane Util. Factor		1.00					1.00	0.95			0.95	
Frt		0.90					1.00	1.00			1.00	
Flt Protected		0.99					0.95	1.00			1.00	
Satd. Flow (prot)		1653					1770	3539			3527	
Flt Permitted		0.96					0.95	1.00			1.00	
Satd. Flow (perm)		1602					1770	3539			3527	
Volume (vph)	6	0	19	0	0	0	18	1898	0	0	724	17
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	0	21	0	0	0	20	2063	0	0	787	18
RTOR Reduction (vph)	0	18	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	10	0	0	0	0	20	2063	0	0	804	0
Turn Type	Prot			Prot			Prot					
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases												
Actuated Green, G (s)		18.0					2.8	84.0			77.2	
Effective Green, g (s)		18.0					2.8	84.0			77.2	
Actuated g/C Ratio		0.16					0.03	0.76			0.70	
Clearance Time (s)		4.0					4.0	4.0			4.0	
Vehicle Extension (s)		3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)		262					45	2703			2475	
v/s Ratio Prot							0.01	c0.58			0.23	
v/s Ratio Perm		c0.02										
v/c Ratio		0.04					0.44	0.76			0.32	
Uniform Delay, d1		38.7					52.8	7.4			6.3	
Progression Factor		1.00					0.96	0.86			1.00	
Incremental Delay, d2		0.1					4.7	1.4			0.3	
Delay (s)		38.8					55.5	7.8			6.7	
Level of Service		D					E	A			A	
Approach Delay (s)		38.8			0.0			8.3			6.7	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM Average Control Delay	8.1	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	62.5%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1731			1770	1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.88			0.75	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1580			1398	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	7	0	3	12	0	16	3	1854	21	11	706	4
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)	8	0	3	13	0	17	3	2015	23	12	767	4
RTOR Reduction (vph)	0	3	0	0	0	14	0	0	5	0	0	1
Lane Group Flow (vph)	0	8	0	0	13	3	3	2015	18	12	767	3
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)		16.8			16.8	16.8	1.2	80.0	80.0	1.2	80.0	80.0
Effective Green, g (s)		16.8			16.8	16.8	1.2	80.0	80.0	1.2	80.0	80.0
Actuated g/C Ratio		0.15			0.15	0.15	0.01	0.73	0.73	0.01	0.73	0.73
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)		241			214	242	19	2574	1151	19	2574	1151
v/s Ratio Prot							0.00	c0.57		c0.01	0.22	
v/s Ratio Perm		0.01			0.01	0.01			0.01			0.00
v/c Ratio		0.04			0.06	0.01	0.16	0.78	0.02	0.63	0.30	0.00
Uniform Delay, d1		39.7			39.9	39.5	53.9	9.5	4.1	54.2	5.2	4.1
Progression Factor		1.00			1.00	1.00	1.09	0.82	0.89	1.10	0.67	0.69
Incremental Delay, d2		0.1			0.1	0.0	2.9	1.8	0.0	51.0	0.3	0.0
Delay (s)		39.8			40.0	39.6	61.4	9.6	3.7	110.8	3.8	2.8
Level of Service		D			D	D	E	A	A	F	A	A
Approach Delay (s)		39.8			39.7			9.6			5.4	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	8.9	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	67.9%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	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)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Volume (vph)	20	103	182	1864	718	26
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	112	198	2026	780	28
RTOR Reduction (vph)	0	105	0	0	0	10
Lane Group Flow (vph)	22	7	198	2026	780	18
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	7.3	7.3	19.7	94.7	71.0	71.0
Effective Green, g (s)	7.3	7.3	19.7	94.7	71.0	71.0
Actuated g/C Ratio	0.07	0.07	0.18	0.86	0.65	0.65
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	117	105	317	3047	2284	1022
v/s Ratio Prot	0.01		0.11	c0.57	0.22	
v/s Ratio Perm		0.07				0.02
v/c Ratio	0.19	0.07	0.62	0.66	0.34	0.02
Uniform Delay, d1	48.5	48.2	41.7	2.5	8.9	7.0
Progression Factor	1.00	1.00	1.00	1.00	1.33	2.64
Incremental Delay, d2	0.8	0.3	3.8	1.2	0.4	0.0
Delay (s)	49.3	48.5	45.5	3.7	12.2	18.5
Level of Service	D	D	D	A	B	B
Approach Delay (s)	48.6			7.4	12.4	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	10.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.69			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	61.5%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.96		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1781	1583		1739		1770	3539	1583	1770	3539	1583
Flt Permitted		0.80	1.00		0.76		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1483	1583		1371		1770	3539	1583	1770	3539	1583
Volume (vph)	19	2	87	22	0	6	123	2017	33	14	846	24
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)	21	2	95	24	0	7	134	2192	36	15	920	26
RTOR Reduction (vph)	0	0	90	0	7	0	0	0	5	0	0	7
Lane Group Flow (vph)	0	23	5	0	24	0	134	2192	31	15	920	19
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)		8.1	8.1		8.1		25.4	126.7	126.7	3.2	104.5	104.5
Effective Green, g (s)		8.1	8.1		8.1		25.4	126.7	126.7	3.2	104.5	104.5
Actuated g/C Ratio		0.05	0.05		0.05		0.17	0.84	0.84	0.02	0.70	0.70
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
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)		80	85		74		300	2989	1337	38	2466	1103
v/s Ratio Prot							0.08	c0.62		0.01	c0.26	
v/s Ratio Perm		0.02	0.06		0.02				0.02			0.02
v/c Ratio		0.29	0.06		0.33		0.45	0.73	0.02	0.39	0.37	0.02
Uniform Delay, d1		68.2	67.3		68.3		56.0	4.8	1.8	72.4	9.3	7.0
Progression Factor		1.00	1.00		1.00		0.78	0.06	0.00	1.00	1.00	1.00
Incremental Delay, d2		2.0	0.3		2.6		0.4	0.7	0.0	6.6	0.4	0.0
Delay (s)		70.2	67.6		70.9		44.0	1.0	0.0	79.1	9.8	7.0
Level of Service		E	E		E		D	A	A	E	A	A
Approach Delay (s)		68.1			70.9			3.4			10.8	
Approach LOS		E			E			A			B	

Intersection Summary				
HCM Average Control Delay	8.2	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	77.3%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.90		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	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	1685		1681	1746	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	1685		1681	1746	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	502	64	112	103	61	112	365	1697	72	86	725	94
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)	546	70	122	112	66	122	397	1845	78	93	788	102
RTOR Reduction (vph)	0	42	0	0	0	97	0	0	21	0	0	62
Lane Group Flow (vph)	546	150	0	87	91	25	397	1845	57	93	788	40
Turn Type	Split			Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	22.0	22.0		12.6	12.6	12.6	47.0	88.4	88.4	11.0	52.4	52.4
Effective Green, g (s)	22.0	22.0		12.6	12.6	12.6	47.0	88.4	88.4	11.0	52.4	52.4
Actuated g/C Ratio	0.15	0.15		0.08	0.08	0.08	0.31	0.59	0.59	0.07	0.35	0.35
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)	504	247		141	147	133	555	2086	933	130	1236	553
v/s Ratio Prot	c0.16	0.11		0.05	0.05		0.22	c0.52		0.05	c0.22	
v/s Ratio Perm						0.08			0.05			0.06
v/c Ratio	1.08	0.61		0.62	0.62	0.19	0.72	0.88	0.06	0.72	0.64	0.07
Uniform Delay, d1	64.0	60.0		66.4	66.4	63.9	45.6	26.4	13.1	68.0	40.9	32.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.90	0.83	1.07	0.88	0.83	1.54
Incremental Delay, d2	64.5	4.2		7.8	7.5	0.7	4.2	5.8	0.1	16.3	2.4	0.2
Delay (s)	128.5	64.2		74.2	73.9	64.6	45.2	27.7	14.1	76.3	36.4	50.5
Level of Service	F	E		E	E	E	D	C	B	E	D	D
Approach Delay (s)		111.8			70.2			30.2			41.7	
Approach LOS		F			E			C			D	

Intersection Summary			
HCM Average Control Delay	49.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95					1.00	0.95	1.00		0.95	1.00
Frt	1.00	0.93					1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	3304					1770	3539	1583		3539	1583
Flt Permitted	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770	3304					1770	3539	1583		3539	1583
Volume (vph)	389	241	192	0	0	0	207	915	411	0	605	341
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)	423	262	209	0	0	0	225	995	447	0	658	371
RTOR Reduction (vph)	0	116	0	0	0	0	0	0	140	0	0	217
Lane Group Flow (vph)	423	355	0	0	0	0	225	995	307	0	658	154
Turn Type	Prot						Prot		Perm			Perm
Protected Phases	7	4					5	2			6	
Permitted Phases									2			6
Actuated Green, G (s)	38.9	38.9					37.0	103.1	103.1		62.1	62.1
Effective Green, g (s)	38.9	38.9					37.0	103.1	103.1		62.1	62.1
Actuated g/C Ratio	0.26	0.26					0.25	0.69	0.69		0.41	0.41
Clearance Time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	459	857					437	2432	1088		1465	655
v/s Ratio Prot	c0.24	0.14					c0.13	0.28			0.19	
v/s Ratio Perm									0.28			0.23
v/c Ratio	0.92	0.41					0.51	0.41	0.28		0.45	0.23
Uniform Delay, d1	54.1	46.1					48.8	10.2	9.1		31.6	28.5
Progression Factor	1.00	1.00					0.97	0.83	0.35		0.23	0.02
Incremental Delay, d2	23.9	0.3					1.0	0.5	0.6		0.8	0.7
Delay (s)	78.0	46.4					48.0	8.9	3.8		8.1	1.2
Level of Service	E	D					D	A	A		A	A
Approach Delay (s)		61.4			0.0			12.8			5.6	
Approach LOS		E			A			B			A	

Intersection Summary			
HCM Average Control Delay	22.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
7: EB 24 Off Ramp & Pleasant Hill Road

Existing PM
6/17/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.98	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1831	1583	1770		1583		3528		1770	3539	
Flt Permitted		0.98	1.00	0.46		1.00		1.00		0.17	1.00	
Satd. Flow (perm)		1831	1583	849		1583		3528		322	3539	
Volume (vph)	35	64	175	17	0	31	0	1272	27	121	570	0
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)	38	70	190	18	0	34	0	1383	29	132	620	0
RTOR Reduction (vph)	0	0	172	0	0	31	0	1	0	0	0	0
Lane Group Flow (vph)	0	108	18	18	0	3	0	1411	0	132	620	0
Turn Type	Perm		Perm	custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		13.9	13.9	13.9		13.9		128.1		128.1	128.1	
Effective Green, g (s)		13.9	13.9	13.9		13.9		128.1		128.1	128.1	
Actuated g/C Ratio		0.09	0.09	0.09		0.09		0.85		0.85	0.85	
Clearance Time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		170	147	79		147		3013		275	3022	
v/s Ratio Prot								0.40			0.18	
v/s Ratio Perm		0.06	0.12	0.02		0.02				c0.41		
v/c Ratio		0.64	0.12	0.23		0.02		0.47		0.48	0.21	
Uniform Delay, d1		65.6	62.4	63.1		61.9		2.7		2.7	1.9	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.44	0.29	
Incremental Delay, d2		7.5	0.4	1.5		0.1		0.5		5.4	0.1	
Delay (s)		73.2	62.8	64.5		61.9		3.2		9.4	0.7	
Level of Service		E	E	E		E		A		A	A	
Approach Delay (s)		66.6			62.8			3.2			2.2	
Approach LOS		E			E			A			A	

Intersection Summary				
HCM Average Control Delay	11.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	64.7%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
8: Deer Hill Road & Brown Avenue

Existing PM
6/17/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	46	612	49	104	292	85	57	8	107	61	12	19
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)	50	665	53	113	317	92	62	9	116	66	13	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	410			718			1362	1428	692	1359	1408	364
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	410			718			1362	1428	692	1359	1408	364
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 %	96			87			36	92	74	13	89	97
cM capacity (veh/h)	1149			883			97	113	444	76	116	681

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	50	718	113	410	71	116	100
Volume Left	50	0	113	0	62	0	66
Volume Right	0	53	0	92	0	116	21
cSH	1149	1700	883	1700	99	444	99
Volume to Capacity	0.04	0.42	0.13	0.24	0.72	0.26	1.01
Queue Length (ft)	3	0	11	0	92	26	155
Control Delay (s)	8.3	0.0	9.7	0.0	103.5	16.0	172.9
Lane LOS	A		A		F	C	F
Approach Delay (s)	0.5		2.1		49.1		172.9
Approach LOS					E		F

Intersection Summary				
Average Delay	17.7			
Intersection Capacity Utilization	62.8%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	
Lane Util. Factor		1.00					1.00	0.95			0.95	
Frt		0.86					1.00	1.00			1.00	
Flt Protected		1.00					0.95	1.00			1.00	
Satd. Flow (prot)		1611					1770	3539			3536	
Flt Permitted		1.00					0.95	1.00			1.00	
Satd. Flow (perm)		1611					1770	3539			3536	
Volume (vph)	0	0	34	0	0	0	15	547	0	0	1398	9
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	37	0	0	0	16	595	0	0	1520	10
RTOR Reduction (vph)	0	36	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1	0	0	0	0	16	595	0	0	1530	0
Turn Type	Prot			Prot			Prot					
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases												
Actuated Green, G (s)		3.3					3.1	98.7			91.6	
Effective Green, g (s)		3.3					3.1	98.7			91.6	
Actuated g/C Ratio		0.03					0.03	0.90			0.83	
Clearance Time (s)		4.0					4.0	4.0			4.0	
Vehicle Extension (s)		3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)		48					50	3175			2945	
v/s Ratio Prot		c0.02					c0.01	0.17			c0.43	
v/s Ratio Perm												
v/c Ratio		0.02					0.32	0.19			0.52	
Uniform Delay, d1		51.8					52.4	0.7			2.7	
Progression Factor		1.00					0.81	0.71			1.00	
Incremental Delay, d2		0.2					3.6	0.1			0.7	
Delay (s)		52.0					46.1	0.6			3.4	
Level of Service		D					D	A			A	
Approach Delay (s)		52.0			0.0			1.8			3.4	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM Average Control Delay	3.8	HCM Level of Service		A
HCM Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	48.9%	ICU Level of Service		A
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00	1.00		0.95	1.00	1.00	0.95	1.00
Frt		0.90			1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.95	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1659			1770	1583		3539	1583	1770	3539	1583
Flt Permitted		0.96			0.75	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1618			1403	1583		3539	1583	1770	3539	1583
Volume (vph)	2	0	5	17	0	9	0	615	12	7	1555	1
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	0	5	18	0	10	0	668	13	8	1690	1
RTOR Reduction (vph)	0	4	0	0	0	8	0	0	4	0	0	0
Lane Group Flow (vph)	0	3	0	0	18	2	0	668	9	8	1690	1
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)		16.8			16.8	16.8		80.0	80.0	1.2	85.2	85.2
Effective Green, g (s)		16.8			16.8	16.8		80.0	80.0	1.2	85.2	85.2
Actuated g/C Ratio		0.15			0.15	0.15		0.73	0.73	0.01	0.77	0.77
Clearance Time (s)		4.0			4.0	4.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		247			214	242		2574	1151	19	2741	1226
v/s Ratio Prot								0.19		0.00	c0.48	
v/s Ratio Perm		0.00			c0.01	0.01			0.01			0.00
v/c Ratio		0.01			0.08	0.01		0.26	0.01	0.42	0.62	0.00
Uniform Delay, d1		39.6			40.0	39.5		5.0	4.1	54.1	5.4	2.8
Progression Factor		1.00			1.00	1.00		1.25	1.85	1.23	0.68	0.83
Incremental Delay, d2		0.0			0.2	0.0		0.2	0.0	13.2	1.0	0.0
Delay (s)		39.6			40.2	39.5		6.5	7.6	79.8	4.6	2.3
Level of Service		D			D	D		A	A	E	A	A
Approach Delay (s)		39.6			39.9			6.6			5.0	
Approach LOS		D			D			A			A	

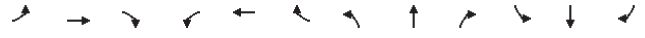
Intersection Summary				
HCM Average Control Delay	5.9	HCM Level of Service		A
HCM Volume to Capacity ratio	0.53			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	53.0%	ICU Level of Service		A
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	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)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Volume (vph)	22	224	94	616	1653	10
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	243	102	670	1797	11
RTOR Reduction (vph)	0	177	0	0	0	3
Lane Group Flow (vph)	24	66	102	670	1797	8
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	10.2	10.2	11.2	91.8	76.6	76.6
Effective Green, g (s)	10.2	10.2	11.2	91.8	76.6	76.6
Actuated g/C Ratio	0.09	0.09	0.10	0.83	0.70	0.70
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	164	147	180	2953	2464	1102
v/s Ratio Prot	0.01		c0.06	0.19	c0.51	
v/s Ratio Perm		0.15				0.01
v/c Ratio	0.15	0.45	0.57	0.23	0.73	0.01
Uniform Delay, d1	45.9	47.2	47.1	1.9	10.3	5.1
Progression Factor	1.00	1.00	0.99	0.93	0.69	0.91
Incremental Delay, d2	0.4	2.2	4.0	0.2	1.6	0.0
Delay (s)	46.3	49.4	50.5	1.9	8.7	4.6
Level of Service	D	D	D	A	A	A
Approach Delay (s)	49.1			8.3	8.7	
Approach LOS	D			A	A	

Intersection Summary				
HCM Average Control Delay	12.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.81			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	66.2%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1782	1583		1698		1770	3539	1583	1770	3539	1583
Flt Permitted		0.74	1.00		0.85		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1378	1583		1473		1770	3539	1583	1770	3539	1583
Volume (vph)	26	3	137	23	3	27	94	616	25	10	1916	20
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	3	149	25	3	29	102	670	27	11	2083	22
RTOR Reduction (vph)	0	0	108	0	27	0	0	0	5	0	0	6
Lane Group Flow (vph)	0	31	41	0	30	0	102	670	22	11	2083	16
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)		8.9	8.9		8.9		10.3	87.9	87.9	1.2	78.8	78.8
Effective Green, g (s)		8.9	8.9		8.9		10.3	87.9	87.9	1.2	78.8	78.8
Actuated g/C Ratio		0.08	0.08		0.08		0.09	0.80	0.80	0.01	0.72	0.72
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
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)		111	128		119		166	2828	1265	19	2535	1134
v/s Ratio Prot							c0.06	0.19		0.01	c0.59	
v/s Ratio Perm		0.02	0.09		0.04				0.02			0.01
v/c Ratio		0.28	0.32		0.26		0.61	0.24	0.02	0.58	0.82	0.01
Uniform Delay, d1		47.5	47.7		47.4		47.9	2.7	2.3	54.1	10.8	4.5
Progression Factor		1.00	1.00		1.00		1.00	1.00	1.00	1.27	0.24	0.05
Incremental Delay, d2		1.4	1.5		1.1		6.6	0.2	0.0	27.2	2.3	0.0
Delay (s)		48.9	49.2		48.6		54.5	2.9	2.3	96.1	4.9	0.2
Level of Service		D	D		D		D	A	A	F	A	A
Approach Delay (s)		49.1			48.6			9.5			5.3	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	9.6	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	77.9%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		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	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	1787		1681	1733	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	1787		1681	1733	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	92	54	20	170	72	32	108	406	125	148	1449	728
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	59	22	185	78	35	117	441	136	161	1575	791
RTOR Reduction (vph)	0	14	0	0	0	31	0	0	68	0	0	295
Lane Group Flow (vph)	100	67	0	128	135	4	117	441	68	161	1575	496
Turn Type	Split			Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	9.4	9.4		13.5	13.5	13.5	9.6	53.5	53.5	14.6	58.5	58.5
Effective Green, g (s)	9.4	9.4		13.5	13.5	13.5	9.6	53.5	53.5	14.6	58.5	58.5
Actuated g/C Ratio	0.09	0.09		0.13	0.13	0.13	0.09	0.50	0.50	0.14	0.55	0.55
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)	302	157		212	219	200	159	1770	792	242	1935	865
v/s Ratio Prot	0.03	c0.05		0.08	c0.08		0.07	0.12		c0.09	0.45	
v/s Ratio Perm						0.02			0.09			0.50
v/c Ratio	0.33	0.43		0.60	0.62	0.02	0.74	0.25	0.09	0.67	0.81	0.57
Uniform Delay, d1	45.8	46.3		44.2	44.3	41.0	47.5	15.3	14.0	43.9	19.8	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
Incremental Delay, d2	0.6	1.9		4.8	5.1	0.0	16.2	0.3	0.2	6.7	3.9	2.8
Delay (s)	46.5	48.1		49.0	49.4	41.0	63.6	15.6	14.2	50.6	23.7	18.8
Level of Service	D	D		D	D	D	E	B	B	D	C	B
Approach Delay (s)		47.2			48.2			23.4			23.9	
Approach LOS		D			D			C			C	

Intersection Summary				
HCM Average Control Delay	26.9	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	107.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	69.3%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95					1.00	0.95	1.00		0.95	1.00
Frt	1.00	0.97					1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	3424					1770	3539	1583		3539	1583
Flt Permitted	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770	3424					1770	3539	1583		3539	1583
Volume (vph)	218	216	60	0	0	0	224	722	396	0	517	544
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)	237	235	65	0	0	0	243	785	430	0	562	591
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	82	0	0	324
Lane Group Flow (vph)	237	274	0	0	0	0	243	785	348	0	562	267
Turn Type	Prot						Prot		Perm			Perm
Protected Phases	7	4					5	2			6	
Permitted Phases									2			6
Actuated Green, G (s)	19.3	19.3					29.0	82.7	82.7		49.7	49.7
Effective Green, g (s)	19.3	19.3					29.0	82.7	82.7		49.7	49.7
Actuated g/C Ratio	0.18	0.18					0.26	0.75	0.75		0.45	0.45
Clearance Time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	311	601					467	2661	1190		1599	715
v/s Ratio Prot	c0.13	0.09					c0.14	0.22			0.16	
v/s Ratio Perm									0.27			0.37
v/c Ratio	0.76	0.46					0.52	0.30	0.29		0.35	0.37
Uniform Delay, d1	43.2	40.6					34.6	4.4	4.3		19.6	19.9
Progression Factor	1.00	1.00					0.99	0.76	0.39		1.00	1.00
Incremental Delay, d2	10.5	0.6					1.0	0.3	0.6		0.6	1.5
Delay (s)	53.7	41.2					35.2	3.6	2.3		20.3	21.4
Level of Service	D	D					D	A	A		C	C
Approach Delay (s)		46.7			0.0			8.5			20.8	
Approach LOS		D			A			A			C	

Intersection Summary				
HCM Average Control Delay	19.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.72			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	52.8%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
7: EB 24 Off Ramp & Pleasant Hill Road

Baseline AM
6/17/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.98	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1833	1583	1770		1583		3529		1770	3539	
Flt Permitted		0.98	1.00	0.72		1.00		1.00		0.22	1.00	
Satd. Flow (perm)		1833	1583	1347		1583		3529		418	3539	
Volume (vph)	16	32	132	12	0	136	0	1071	20	80	470	0
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)	17	35	143	13	0	148	0	1164	22	87	511	0
RTOR Reduction (vph)	0	0	131	0	0	85	0	0	0	0	0	0
Lane Group Flow (vph)	0	52	12	13	0	63	0	1186	0	87	511	0
Turn Type	Perm		Perm	custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		9.6	9.6	9.6		9.6		92.4		92.4	92.4	
Effective Green, g (s)		9.6	9.6	9.6		9.6		92.4		92.4	92.4	
Actuated g/C Ratio		0.09	0.09	0.09		0.09		0.84		0.84	0.84	
Clearance Time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		160	138	118		138		2964		351	2973	
v/s Ratio Prot								c0.34			0.14	
v/s Ratio Perm		0.03	0.09	0.01		0.09				0.21		
v/c Ratio		0.33	0.09	0.11		0.46		0.40		0.25	0.17	
Uniform Delay, d1		47.2	46.2	46.3		47.7		2.1		1.8	1.6	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.87	0.39	
Incremental Delay, d2		1.2	0.3	0.4		2.4		0.4		1.6	0.1	
Delay (s)		48.3	46.5	46.7		50.1		2.5		4.9	0.8	
Level of Service		D	D	D		D		A		A	A	
Approach Delay (s)		47.0			49.8			2.5			1.4	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	9.8	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.46			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	53.9%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
8: Deer Hill Road & Brown Avenue

Baseline AM
6/17/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	26	200	48	172	645	36	85	12	76	28	8	52
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)	28	217	52	187	701	39	92	13	83	30	9	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)												
pX, platoon unblocked												
vC, conflicting volume	740			270			1436	1414	243	1375	1421	721
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	740			270			1436	1414	243	1375	1421	721
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 %	97			86			0	89	90	65	92	87
cM capacity (veh/h)	866			1294			79	114	795	87	113	428

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	28	270	187	740	105	83	96
Volume Left	28	0	187	0	92	0	30
Volume Right	0	52	0	39	0	83	57
cSH	866	1700	1294	1700	82	795	171
Volume to Capacity	0.03	0.16	0.14	0.44	1.28	0.10	0.56
Queue Length (ft)	3	0	13	0	198	9	73
Control Delay (s)	9.3	0.0	8.3	0.0	284.5	10.1	49.7
Lane LOS	A		A		F	B	E
Approach Delay (s)	0.9		1.7		163.9		49.7
Approach LOS					F		E

Intersection Summary				
Average Delay	24.8			
Intersection Capacity Utilization	61.5%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	
Lane Util. Factor		1.00					1.00	0.95			0.95	
Frt		0.90					1.00	1.00			1.00	
Flt Protected		0.99					0.95	1.00			1.00	
Satd. Flow (prot)		1653					1770	3539			3528	
Flt Permitted		0.96					0.95	1.00			1.00	
Satd. Flow (perm)		1602					1770	3539			3528	
Volume (vph)	6	0	19	0	0	0	18	1993	0	0	760	17
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	0	21	0	0	0	20	2166	0	0	826	18
RTOR Reduction (vph)	0	18	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	10	0	0	0	0	20	2166	0	0	843	0
Turn Type	Prot			Prot			Prot					
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases												
Actuated Green, G (s)		18.0					2.8	84.0			77.2	
Effective Green, g (s)		18.0					2.8	84.0			77.2	
Actuated g/C Ratio		0.16					0.03	0.76			0.70	
Clearance Time (s)		4.0					4.0	4.0			4.0	
Vehicle Extension (s)		3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)		262					45	2703			2476	
v/s Ratio Prot							0.01	c0.61			0.24	
v/s Ratio Perm		c0.02										
v/c Ratio		0.04					0.44	0.80			0.34	
Uniform Delay, d1		38.7					52.8	7.9			6.4	
Progression Factor		1.00					0.94	0.88			1.00	
Incremental Delay, d2		0.1					4.4	1.7			0.4	
Delay (s)		38.8					54.3	8.6			6.8	
Level of Service		D					D	A			A	
Approach Delay (s)		38.8			0.0			9.1			6.8	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM Average Control Delay	8.7	HCM Level of Service		A
HCM Volume to Capacity ratio	0.68			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	65.1%	ICU Level of Service		C
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1731			1770	1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.88			0.75	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1580			1398	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	7	0	3	12	0	16	3	1947	21	11	741	4
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)	8	0	3	13	0	17	3	2116	23	12	805	4
RTOR Reduction (vph)	0	3	0	0	0	14	0	0	5	0	0	1
Lane Group Flow (vph)	0	8	0	0	13	3	3	2116	18	12	805	3
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)		16.8			16.8	16.8	1.2	80.0	80.0	1.2	80.0	80.0
Effective Green, g (s)		16.8			16.8	16.8	1.2	80.0	80.0	1.2	80.0	80.0
Actuated g/C Ratio		0.15			0.15	0.15	0.01	0.73	0.73	0.01	0.73	0.73
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)		241			214	242	19	2574	1151	19	2574	1151
v/s Ratio Prot							0.00	c0.60		c0.01	0.23	
v/s Ratio Perm		0.01			0.01	0.01			0.01			0.00
v/c Ratio		0.04			0.06	0.01	0.16	0.82	0.02	0.63	0.31	0.00
Uniform Delay, d1		39.7			39.9	39.5	53.9	10.2	4.1	54.2	5.3	4.1
Progression Factor		1.00			1.00	1.00	1.08	0.81	0.89	1.10	0.66	0.69
Incremental Delay, d2		0.1			0.1	0.0	2.8	2.2	0.0	50.8	0.3	0.0
Delay (s)		39.8			40.0	39.6	60.7	10.5	3.7	110.5	3.8	2.8
Level of Service		D			D	D	E	B	A	F	A	A
Approach Delay (s)		39.8			39.7			10.5			5.3	
Approach LOS		D			D			B			A	

Intersection Summary				
HCM Average Control Delay	9.5	HCM Level of Service		A
HCM Volume to Capacity ratio	0.69			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	70.5%	ICU Level of Service		C
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	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)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Volume (vph)	20	103	182	1957	754	26
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	112	198	2127	820	28
RTOR Reduction (vph)	0	105	0	0	0	10
Lane Group Flow (vph)	22	7	198	2127	820	18
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	7.3	7.3	19.7	94.7	71.0	71.0
Effective Green, g (s)	7.3	7.3	19.7	94.7	71.0	71.0
Actuated g/C Ratio	0.07	0.07	0.18	0.86	0.65	0.65
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	117	105	317	3047	2284	1022
v/s Ratio Prot	0.01		0.11	c0.60	0.23	
v/s Ratio Perm		0.07				0.02
v/c Ratio	0.19	0.07	0.62	0.70	0.36	0.02
Uniform Delay, d1	48.5	48.2	41.7	2.7	9.0	7.0
Progression Factor	1.00	1.00	1.00	1.00	1.35	2.74
Incremental Delay, d2	0.8	0.3	3.8	1.4	0.4	0.0
Delay (s)	49.3	48.5	45.5	4.0	12.5	19.2
Level of Service	D	D	D	A	B	B
Approach Delay (s)	48.6			7.6	12.8	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	10.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.72			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	64.1%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.96		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1781	1583		1739		1770	3539	1583	1770	3539	1583
Flt Permitted		0.80	1.00		0.76		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1483	1583		1371		1770	3539	1583	1770	3539	1583
Volume (vph)	19	2	87	22	0	6	123	2118	33	14	888	24
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)	21	2	95	24	0	7	134	2302	36	15	965	26
RTOR Reduction (vph)	0	0	90	0	7	0	0	0	5	0	0	7
Lane Group Flow (vph)	0	23	5	0	24	0	134	2302	31	15	965	19
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)		8.1	8.1		8.1		25.4	126.7	126.7	3.2	104.5	104.5
Effective Green, g (s)		8.1	8.1		8.1		25.4	126.7	126.7	3.2	104.5	104.5
Actuated g/C Ratio		0.05	0.05		0.05		0.17	0.84	0.84	0.02	0.70	0.70
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
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)		80	85		74		300	2989	1337	38	2466	1103
v/s Ratio Prot							0.08	c0.65		0.01	c0.27	
v/s Ratio Perm		0.02	0.06		0.02				0.02			0.02
v/c Ratio		0.29	0.06		0.33		0.45	0.77	0.02	0.39	0.39	0.02
Uniform Delay, d1		68.2	67.3		68.3		56.0	5.2	1.8	72.4	9.5	7.0
Progression Factor		1.00	1.00		1.00		0.77	0.06	0.00	1.00	1.00	1.00
Incremental Delay, d2		2.0	0.3		2.6		0.4	0.7	0.0	6.6	0.5	0.0
Delay (s)		70.2	67.6		70.9		43.7	1.0	0.0	79.1	10.0	7.0
Level of Service		E	E		E		D	A	A	E	A	A
Approach Delay (s)		68.1			70.9			3.3			10.9	
Approach LOS		E			E			A			B	

Intersection Summary				
HCM Average Control Delay	8.1	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	80.1%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.90		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	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	1685		1681	1746	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	1685		1681	1746	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	502	64	112	103	61	112	365	1782	72	86	761	94
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)	546	70	122	112	66	122	397	1937	78	93	827	102
RTOR Reduction (vph)	0	42	0	0	0	95	0	0	19	0	0	60
Lane Group Flow (vph)	546	150	0	87	91	27	397	1937	59	93	827	42
Turn Type	Split			Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	22.0	22.0		12.6	12.6	12.6	47.0	88.3	88.3	11.1	52.4	52.4
Effective Green, g (s)	22.0	22.0		12.6	12.6	12.6	47.0	88.3	88.3	11.1	52.4	52.4
Actuated g/C Ratio	0.15	0.15		0.08	0.08	0.08	0.31	0.59	0.59	0.07	0.35	0.35
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)	504	247		141	147	133	555	2083	932	131	1236	553
v/s Ratio Prot	c0.16	0.11		0.05	0.05		0.22	c0.55		0.05	c0.23	
v/s Ratio Perm						0.08			0.05			0.06
v/c Ratio	1.08	0.61		0.62	0.62	0.20	0.72	0.93	0.06	0.71	0.67	0.08
Uniform Delay, d1	64.0	60.0		66.4	66.4	64.0	45.6	28.0	13.2	67.9	41.4	32.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.92	0.85	1.14	0.88	0.83	1.41
Incremental Delay, d2	64.5	4.2		7.8	7.5	0.7	4.2	8.7	0.1	15.4	2.7	0.3
Delay (s)	128.5	64.2		74.2	73.9	64.8	46.1	32.6	15.1	75.2	37.2	46.4
Level of Service	F	E		E	E	E	D	C	B	E	D	D
Approach Delay (s)		111.8			70.3			34.3			41.5	
Approach LOS		F			E			C			D	

Intersection Summary					
HCM Average Control Delay	51.1	HCM Level of Service		D	
HCM Volume to Capacity ratio	0.94				
Actuated Cycle Length (s)	150.0	Sum of lost time (s)		16.0	
Intersection Capacity Utilization	86.1%	ICU Level of Service		E	
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95					1.00	0.95	1.00		0.95	1.00
Frt	1.00	0.93					1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	3304					1770	3539	1583		3539	1583
Flt Permitted	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770	3304					1770	3539	1583		3539	1583
Volume (vph)	401	241	192	0	0	0	207	961	411	0	635	351
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)	436	262	209	0	0	0	225	1045	447	0	690	382
RTOR Reduction (vph)	0	115	0	0	0	0	0	0	143	0	0	227
Lane Group Flow (vph)	436	356	0	0	0	0	225	1045	304	0	690	155
Turn Type	Prot						Prot		Perm			Perm
Protected Phases	7	4					5	2			6	
Permitted Phases									2			6
Actuated Green, G (s)	40.1	40.1					37.0	101.9	101.9		60.9	60.9
Effective Green, g (s)	40.1	40.1					37.0	101.9	101.9		60.9	60.9
Actuated g/C Ratio	0.27	0.27					0.25	0.68	0.68		0.41	0.41
Clearance Time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	473	883					437	2404	1075		1437	643
v/s Ratio Prot	c0.25	0.14					c0.13	0.30			0.19	
v/s Ratio Perm									0.28			0.24
v/c Ratio	0.92	0.40					0.51	0.43	0.28		0.48	0.24
Uniform Delay, d1	53.4	45.1					48.8	10.9	9.5		32.9	29.3
Progression Factor	1.00	1.00					0.96	0.83	0.32		0.25	0.05
Incremental Delay, d2	23.5	0.3					0.9	0.5	0.6		0.9	0.7
Delay (s)	76.9	45.4					47.9	9.6	3.7		9.2	2.1
Level of Service	E	D					D	A	A		A	A
Approach Delay (s)		60.6			0.0			13.1			6.6	
Approach LOS		E			A			B			A	

Intersection Summary					
HCM Average Control Delay	22.9	HCM Level of Service		C	
HCM Volume to Capacity ratio	0.67				
Actuated Cycle Length (s)	150.0	Sum of lost time (s)		12.0	
Intersection Capacity Utilization	61.2%	ICU Level of Service		B	
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.98	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1831	1583	1770		1583		3529		1770	3539	
Flt Permitted		0.98	1.00	0.46		1.00		1.00		0.16	1.00	
Satd. Flow (perm)		1831	1583	849		1583		3529		297	3539	
Volume (vph)	35	64	175	17	0	31	0	1336	27	121	599	0
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)	38	70	190	18	0	34	0	1452	29	132	651	0
RTOR Reduction (vph)	0	0	172	0	0	31	0	1	0	0	0	0
Lane Group Flow (vph)	0	108	18	18	0	3	0	1480	0	132	651	0
Turn Type	Perm		Perm	custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		13.9	13.9	13.9		13.9		128.1		128.1	128.1	
Effective Green, g (s)		13.9	13.9	13.9		13.9		128.1		128.1	128.1	
Actuated g/C Ratio		0.09	0.09	0.09		0.09		0.85		0.85	0.85	
Clearance Time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		170	147	79		147		3014		254	3022	
v/s Ratio Prot								0.42			0.18	
v/s Ratio Perm		0.06	0.12	0.02		0.02				c0.45		
v/c Ratio		0.64	0.12	0.23		0.02		0.49		0.52	0.22	
Uniform Delay, d1		65.6	62.4	63.1		61.9		2.8		2.9	2.0	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.64	0.26	
Incremental Delay, d2		7.5	0.4	1.5		0.1		0.6		6.8	0.1	
Delay (s)		73.2	62.8	64.5		61.9		3.3		11.5	0.7	
Level of Service		E	E	E		E		A		B	A	
Approach Delay (s)		66.6			62.8			3.3			2.5	
Approach LOS		E			E			A			A	

Intersection Summary				
HCM Average Control Delay	11.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	66.5%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	46	612	49	104	292	85	57	8	107	61	12	19
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)	50	665	53	113	317	92	62	9	116	66	13	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	410			718			1362	1428	692	1359	1408	364
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	410			718			1362	1428	692	1359	1408	364
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 %	96			87			36	92	74	13	89	97
cM capacity (veh/h)	1149			883			97	113	444	76	116	681

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	50	718	113	410	71	116	100
Volume Left	50	0	113	0	62	0	66
Volume Right	0	53	0	92	0	116	21
cSH	1149	1700	883	1700	99	444	99
Volume to Capacity	0.04	0.42	0.13	0.24	0.72	0.26	1.01
Queue Length (ft)	3	0	11	0	92	26	155
Control Delay (s)	8.3	0.0	9.7	0.0	103.5	16.0	172.9
Lane LOS	A		A		F	C	F
Approach Delay (s)	0.5		2.1		49.1		172.9
Approach LOS					E		F

Intersection Summary				
Average Delay	17.7			
Intersection Capacity Utilization	62.8%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	
Lane Util. Factor		1.00					1.00	0.95			0.95	
Frt		0.86					1.00	1.00			1.00	
Flt Protected		1.00					0.95	1.00			1.00	
Satd. Flow (prot)		1611					1770	3539			3536	
Flt Permitted		1.00					0.95	1.00			1.00	
Satd. Flow (perm)		1611					1770	3539			3536	
Volume (vph)	0	0	34	0	0	0	15	561	0	0	1404	9
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	37	0	0	0	16	610	0	0	1526	10
RTOR Reduction (vph)	0	36	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1	0	0	0	0	16	610	0	0	1536	0
Turn Type	Prot			Prot			Prot					
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases												
Actuated Green, G (s)		3.3					3.1	98.7			91.6	
Effective Green, g (s)		3.3					3.1	98.7			91.6	
Actuated g/C Ratio		0.03					0.03	0.90			0.83	
Clearance Time (s)		4.0					4.0	4.0			4.0	
Vehicle Extension (s)		3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)		48					50	3175			2945	
v/s Ratio Prot		c0.02					c0.01	0.17			c0.43	
v/s Ratio Perm												
v/c Ratio		0.02					0.32	0.19			0.52	
Uniform Delay, d1		51.8					52.4	0.7			2.7	
Progression Factor		1.00					0.81	0.70			1.00	
Incremental Delay, d2		0.2					3.6	0.1			0.7	
Delay (s)		52.0					45.9	0.6			3.4	
Level of Service		D					D	A			A	
Approach Delay (s)		52.0			0.0			1.8			3.4	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM Average Control Delay	3.7	HCM Level of Service		A
HCM Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	49.1%	ICU Level of Service		A
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00	1.00		0.95	1.00	1.00	0.95	1.00
Frt		0.90			1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.95	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1659			1770	1583		3539	1583	1770	3539	1583
Flt Permitted		0.96			0.75	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1618			1403	1583		3539	1583	1770	3539	1583
Volume (vph)	2	0	5	17	0	9	0	629	12	7	1561	1
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	0	5	18	0	10	0	684	13	8	1697	1
RTOR Reduction (vph)	0	4	0	0	0	8	0	0	4	0	0	0
Lane Group Flow (vph)	0	3	0	0	18	2	0	684	9	8	1697	1
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)		16.8			16.8	16.8		80.0	80.0	1.2	85.2	85.2
Effective Green, g (s)		16.8			16.8	16.8		80.0	80.0	1.2	85.2	85.2
Actuated g/C Ratio		0.15			0.15	0.15		0.73	0.73	0.01	0.77	0.77
Clearance Time (s)		4.0			4.0	4.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		247			214	242		2574	1151	19	2741	1226
v/s Ratio Prot								0.19		0.00	c0.48	
v/s Ratio Perm		0.00			c0.01	0.01			0.01			0.00
v/c Ratio		0.01			0.08	0.01		0.27	0.01	0.42	0.62	0.00
Uniform Delay, d1		39.6			40.0	39.5		5.1	4.1	54.1	5.4	2.8
Progression Factor		1.00			1.00	1.00		1.25	1.86	1.22	0.68	0.83
Incremental Delay, d2		0.0			0.2	0.0		0.2	0.0	13.2	1.0	0.0
Delay (s)		39.6			40.2	39.5		6.6	7.7	79.4	4.6	2.3
Level of Service		D			D	D		A	A	E	A	A
Approach Delay (s)		39.6			39.9			6.6			5.0	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	6.0	HCM Level of Service		A
HCM Volume to Capacity ratio	0.53			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	53.2%	ICU Level of Service		A
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	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)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Volume (vph)	22	224	94	630	1659	10
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	243	102	685	1803	11
RTOR Reduction (vph)	0	177	0	0	0	3
Lane Group Flow (vph)	24	66	102	685	1803	8
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	10.2	10.2	11.2	91.8	76.6	76.6
Effective Green, g (s)	10.2	10.2	11.2	91.8	76.6	76.6
Actuated g/C Ratio	0.09	0.09	0.10	0.83	0.70	0.70
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	164	147	180	2953	2464	1102
v/s Ratio Prot	0.01		c0.06	0.19	c0.51	
v/s Ratio Perm		0.15				0.01
v/c Ratio	0.15	0.45	0.57	0.23	0.73	0.01
Uniform Delay, d1	45.9	47.2	47.1	1.9	10.3	5.1
Progression Factor	1.00	1.00	0.99	0.93	0.69	0.92
Incremental Delay, d2	0.4	2.2	4.0	0.2	1.6	0.0
Delay (s)	46.3	49.4	50.4	1.9	8.7	4.7
Level of Service	D	D	D	A	A	A
Approach Delay (s)	49.1			8.2	8.7	
Approach LOS	D			A	A	

Intersection Summary				
HCM Average Control Delay	12.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.81			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	66.4%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1782	1583		1698		1770	3539	1583	1770	3539	1583
Flt Permitted		0.74	1.00		0.85		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1378	1583		1473		1770	3539	1583	1770	3539	1583
Volume (vph)	26	3	137	23	3	27	94	630	25	10	1922	20
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	3	149	25	3	29	102	685	27	11	2089	22
RTOR Reduction (vph)	0	0	108	0	27	0	0	0	5	0	0	6
Lane Group Flow (vph)	0	31	41	0	30	0	102	685	22	11	2089	16
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)		8.9	8.9		8.9		10.3	87.9	87.9	1.2	78.8	78.8
Effective Green, g (s)		8.9	8.9		8.9		10.3	87.9	87.9	1.2	78.8	78.8
Actuated g/C Ratio		0.08	0.08		0.08		0.09	0.80	0.80	0.01	0.72	0.72
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
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)		111	128		119		166	2828	1265	19	2535	1134
v/s Ratio Prot							c0.06	0.19		0.01	c0.59	
v/s Ratio Perm		0.02	0.09		0.04				0.02			0.01
v/c Ratio		0.28	0.32		0.26		0.61	0.24	0.02	0.58	0.82	0.01
Uniform Delay, d1		47.5	47.7		47.4		47.9	2.8	2.3	54.1	10.8	4.5
Progression Factor		1.00	1.00		1.00		1.00	1.00	1.00	1.27	0.24	0.05
Incremental Delay, d2		1.4	1.5		1.1		6.6	0.2	0.0	27.1	2.3	0.0
Delay (s)		48.9	49.2		48.6		54.5	3.0	2.3	96.2	5.0	0.2
Level of Service		D	D		D		D	A	A	F	A	A
Approach Delay (s)		49.1			48.6			9.4			5.4	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	9.7	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	78.1%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1750		1681	1734	1583	1770	3539	1583	1770	4829	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1750		1681	1734	1583	1770	3539	1583	1770	4829	
Volume (vph)	107	63	42	172	74	32	108	406	125	148	1451	733
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	68	46	187	80	35	117	441	136	161	1577	797
RTOR Reduction (vph)	0	23	0	0	0	31	0	0	71	0	71	0
Lane Group Flow (vph)	116	91	0	130	137	4	117	441	65	161	2303	0
Turn Type	Split			Split		Perm	Prot		Perm	Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	10.9	10.9		13.2	13.2	13.2	9.7	52.2	52.2	17.7	60.2	
Effective Green, g (s)	10.9	10.9		13.2	13.2	13.2	9.7	52.2	52.2	17.7	60.2	
Actuated g/C Ratio	0.10	0.10		0.12	0.12	0.12	0.09	0.47	0.47	0.16	0.55	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
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)	340	173		202	208	190	156	1679	751	285	2643	
v/s Ratio Prot	0.03	c0.07		0.08	c0.08		c0.07	0.12		0.09	c0.49	
v/s Ratio Perm						0.02			0.09			
v/c Ratio	0.34	0.52		0.64	0.66	0.02	0.75	0.26	0.09	0.56	0.87	
Uniform Delay, d1	46.2	47.1		46.2	46.2	42.7	49.0	17.3	15.8	42.6	21.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.93	0.70	0.19	0.84	0.69	
Incremental Delay, d2	0.6	2.8		6.9	7.3	0.0	17.5	0.4	0.2	1.9	3.2	
Delay (s)	46.8	49.9		53.0	53.6	42.8	63.1	12.6	3.2	37.8	18.0	
Level of Service	D	D		D	D	D	E	B	A	D	B	
Approach Delay (s)		48.4			52.1			19.2			19.2	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95					1.00	0.95	1.00		0.95	1.00
Frt	1.00	0.97					1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	3424					1770	3539	1583		3539	1583
Flt Permitted	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770	3424					1770	3539	1583		3539	1583
Volume (vph)	218	216	60	0	0	0	224	729	396	0	534	544
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)	237	235	65	0	0	0	243	792	430	0	580	591
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	82	0	0	324
Lane Group Flow (vph)	237	274	0	0	0	0	243	792	348	0	580	267
Turn Type	Prot						Prot		Perm			Perm
Protected Phases	7	4					5	2			6	
Permitted Phases									2			6
Actuated Green, G (s)	19.3	19.3					29.0	82.7	82.7		49.7	49.7
Effective Green, g (s)	19.3	19.3					29.0	82.7	82.7		49.7	49.7
Actuated g/C Ratio	0.18	0.18					0.26	0.75	0.75		0.45	0.45
Clearance Time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	311	601					467	2661	1190		1599	715
v/s Ratio Prot	c0.13	0.09					c0.14	0.22			0.16	
v/s Ratio Perm									0.27			0.37
v/c Ratio	0.76	0.46					0.52	0.30	0.29		0.36	0.37
Uniform Delay, d1	43.2	40.6					34.6	4.4	4.3		19.8	19.9
Progression Factor	1.00	1.00					0.99	0.76	0.38		1.00	1.00
Incremental Delay, d2	10.5	0.6					1.0	0.3	0.6		0.6	1.5
Delay (s)	53.7	41.2					35.3	3.6	2.3		20.4	21.4
Level of Service	D	D					D	A	A		C	C
Approach Delay (s)		46.7			0.0			8.4			20.9	
Approach LOS		D			A			A			C	

Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
7: EB 24 Off Ramp & Pleasant Hill Roa

Baseline + Project AM
6/17/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.98	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1833	1583	1770		1583		3529		1770	3539	
Flt Permitted		0.98	1.00	0.72		1.00		1.00		0.22	1.00	
Satd. Flow (perm)		1833	1583	1347		1583		3529		414	3539	
Volume (vph)	16	32	132	12	0	136	0	1078	20	80	487	0
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)	17	35	143	13	0	148	0	1172	22	87	529	0
RTOR Reduction (vph)	0	0	131	0	0	83	0	0	0	0	0	0
Lane Group Flow (vph)	0	52	12	13	0	65	0	1194	0	87	529	0
Turn Type	Perm		Perm	custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		9.6	9.6	9.6		9.6		92.4		92.4	92.4	
Effective Green, g (s)		9.6	9.6	9.6		9.6		92.4		92.4	92.4	
Actuated g/C Ratio		0.09	0.09	0.09		0.09		0.84		0.84	0.84	
Clearance Time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		160	138	118		138		2964		348	2973	
v/s Ratio Prot								c0.34			0.15	
v/s Ratio Perm		0.03	0.09	0.01		0.09				0.21		
v/c Ratio		0.33	0.09	0.11		0.47		0.40		0.25	0.18	
Uniform Delay, d1		47.2	46.2	46.3		47.8		2.1		1.8	1.7	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.85	0.38	
Incremental Delay, d2		1.2	0.3	0.4		2.5		0.4		1.6	0.1	
Delay (s)		48.3	46.5	46.7		50.3		2.5		4.9	0.7	
Level of Service		D	D	D		D		A		A	A	
Approach Delay (s)		47.0			50.0			2.5			1.3	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	9.7	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.47			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	54.1%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
8: Deer Hill Road & Brown Avenu

Baseline + Project AM
6/17/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	26	207	48	172	665	36	85	12	76	28	8	52
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)	28	225	52	187	723	39	92	13	83	30	9	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)												
pX, platoon unblocked												
vC, conflicting volume	762			277			1465	1443	251	1404	1450	742
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	762			277			1465	1443	251	1404	1450	742
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 %	97			85			0	88	90	63	92	86
cM capacity (veh/h)	850			1286			75	109	788	83	108	415

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	28	277	187	762	105	83	96
Volume Left	28	0	187	0	92	0	30
Volume Right	0	52	0	39	0	83	57
cSH	850	1700	1286	1700	78	788	164
Volume to Capacity	0.03	0.16	0.15	0.45	1.36	0.10	0.58
Queue Length (ft)	3	0	13	0	206	9	77
Control Delay (s)	9.4	0.0	8.3	0.0	317.6	10.1	54.1
Lane LOS	A		A		F	B	F
Approach Delay (s)	0.9		1.6		182.5		54.1
Approach LOS					F		F

Intersection Summary				
Average Delay	26.9			
Intersection Capacity Utilization	62.5%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	
Lane Util. Factor		1.00					1.00	0.95			0.95	
Frt		0.90					1.00	1.00			1.00	
Flt Protected		0.99					0.95	1.00			1.00	
Satd. Flow (prot)		1653					1770	3539			3528	
Flt Permitted		0.96					0.95	1.00			1.00	
Satd. Flow (perm)		1602					1770	3539			3528	
Volume (vph)	6	0	19	0	0	0	18	2001	0	0	774	17
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	0	21	0	0	0	20	2175	0	0	841	18
RTOR Reduction (vph)	0	18	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	10	0	0	0	0	20	2175	0	0	858	0
Turn Type	Prot			Prot			Prot					
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases												
Actuated Green, G (s)		18.0					2.8	84.0			77.2	
Effective Green, g (s)		18.0					2.8	84.0			77.2	
Actuated g/C Ratio		0.16					0.03	0.76			0.70	
Clearance Time (s)		4.0					4.0	4.0			4.0	
Vehicle Extension (s)		3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)		262					45	2703			2476	
v/s Ratio Prot							0.01	c0.61			0.24	
v/s Ratio Perm		c0.02										
v/c Ratio		0.04					0.44	0.80			0.35	
Uniform Delay, d1		38.7					52.8	8.0			6.5	
Progression Factor		1.00					0.94	0.88			1.00	
Incremental Delay, d2		0.1					4.4	1.7			0.4	
Delay (s)		38.8					54.3	8.7			6.8	
Level of Service		D					D	A			A	
Approach Delay (s)		38.8			0.0			9.1			6.8	
Approach LOS		D			A			A			A	

Intersection Summary					
HCM Average Control Delay	8.8	HCM Level of Service		A	
HCM Volume to Capacity ratio	0.68				
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	65.3%	ICU Level of Service		C	
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1731			1770	1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.88			0.75	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1580			1398	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	7	0	3	12	0	16	3	1955	21	11	755	4
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)	8	0	3	13	0	17	3	2125	23	12	821	4
RTOR Reduction (vph)	0	3	0	0	0	14	0	0	5	0	0	1
Lane Group Flow (vph)	0	8	0	0	13	3	3	2125	18	12	821	3
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)		16.8			16.8	16.8	1.2	80.0	80.0	1.2	80.0	80.0
Effective Green, g (s)		16.8			16.8	16.8	1.2	80.0	80.0	1.2	80.0	80.0
Actuated g/C Ratio		0.15			0.15	0.15	0.01	0.73	0.73	0.01	0.73	0.73
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)		241			214	242	19	2574	1151	19	2574	1151
v/s Ratio Prot							0.00	c0.60		c0.01	0.23	
v/s Ratio Perm		0.01			0.01	0.01			0.01			0.00
v/c Ratio		0.04			0.06	0.01	0.16	0.83	0.02	0.63	0.32	0.00
Uniform Delay, d1		39.7			39.9	39.5	53.9	10.2	4.1	54.2	5.3	4.1
Progression Factor		1.00			1.00	1.00	1.08	0.81	0.89	1.10	0.65	0.69
Incremental Delay, d2		0.1			0.1	0.0	2.7	2.3	0.0	50.8	0.3	0.0
Delay (s)		39.8			40.0	39.6	60.8	10.6	3.7	110.3	3.8	2.8
Level of Service		D			D	D	E	B	A	F	A	A
Approach Delay (s)		39.8			39.7			10.5			5.3	
Approach LOS		D			D			B			A	

Intersection Summary					
HCM Average Control Delay	9.5	HCM Level of Service		A	
HCM Volume to Capacity ratio	0.69				
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		12.0	
Intersection Capacity Utilization	70.7%	ICU Level of Service		C	
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	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)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Volume (vph)	20	103	182	1965	768	26
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	112	198	2136	835	28
RTOR Reduction (vph)	0	105	0	0	0	10
Lane Group Flow (vph)	22	7	198	2136	835	18
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	7.3	7.3	19.7	94.7	71.0	71.0
Effective Green, g (s)	7.3	7.3	19.7	94.7	71.0	71.0
Actuated g/C Ratio	0.07	0.07	0.18	0.86	0.65	0.65
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	117	105	317	3047	2284	1022
v/s Ratio Prot	0.01		0.11	c0.60	0.24	
v/s Ratio Perm		0.07				0.02
v/c Ratio	0.19	0.07	0.62	0.70	0.37	0.02
Uniform Delay, d1	48.5	48.2	41.7	2.7	9.0	7.0
Progression Factor	1.00	1.00	1.00	1.00	1.35	2.76
Incremental Delay, d2	0.8	0.3	3.8	1.4	0.4	0.0
Delay (s)	49.3	48.5	45.5	4.1	12.7	19.3
Level of Service	D	D	D	A	B	B
Approach Delay (s)	48.6			7.6	12.9	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	10.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	64.3%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.96		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1781	1583		1739		1770	3539	1583	1770	3539	1583
Flt Permitted		0.80	1.00		0.76		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1483	1583		1371		1770	3539	1583	1770	3539	1583
Volume (vph)	19	2	87	22	0	6	123	2126	33	14	902	24
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)	21	2	95	24	0	7	134	2311	36	15	980	26
RTOR Reduction (vph)	0	0	90	0	7	0	0	0	5	0	0	7
Lane Group Flow (vph)	0	23	5	0	24	0	134	2311	31	15	980	19
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)		8.1	8.1		8.1		25.4	126.7	126.7	3.2	104.5	104.5
Effective Green, g (s)		8.1	8.1		8.1		25.4	126.7	126.7	3.2	104.5	104.5
Actuated g/C Ratio		0.05	0.05		0.05		0.17	0.84	0.84	0.02	0.70	0.70
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
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)		80	85		74		300	2989	1337	38	2466	1103
v/s Ratio Prot							0.08	c0.65		0.01	c0.28	
v/s Ratio Perm		0.02	0.06		0.02				0.02			0.02
v/c Ratio		0.29	0.06		0.33		0.45	0.77	0.02	0.39	0.40	0.02
Uniform Delay, d1		68.2	67.3		68.3		56.0	5.2	1.8	72.4	9.5	7.0
Progression Factor		1.00	1.00		1.00		0.77	0.06	0.00	1.00	1.00	1.00
Incremental Delay, d2		2.0	0.3		2.6		0.4	0.7	0.0	6.6	0.5	0.0
Delay (s)		70.2	67.6		70.9		43.5	1.0	0.0	79.1	10.0	7.0
Level of Service		E	E		E		D	A	A	E	B	A
Approach Delay (s)		68.1			70.9			3.3			11.0	
Approach LOS		E			E			A			B	

Intersection Summary				
HCM Average Control Delay	8.1	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	80.4%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1678		1681	1748	1583	1770	3539	1583	1770	4996	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1678		1681	1748	1583	1770	3539	1583	1770	4996	
Volume (vph)	509	70	136	106	67	112	365	1782	72	86	768	102
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)	553	76	148	115	73	122	397	1937	78	93	835	111
RTOR Reduction (vph)	0	47	0	0	0	79	0	0	19	0	11	0
Lane Group Flow (vph)	553	177	0	91	97	43	397	1937	59	93	935	0
Turn Type	Split			Split		Perm	Prot		Perm	Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	25.0	25.0		13.0	13.0	13.0	47.0	88.0	88.0	8.0	49.0	
Effective Green, g (s)	25.0	25.0		13.0	13.0	13.0	47.0	88.0	88.0	8.0	49.0	
Actuated g/C Ratio	0.17	0.17		0.09	0.09	0.09	0.31	0.59	0.59	0.05	0.33	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
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)	572	280		146	151	137	555	2076	929	94	1632	
v/s Ratio Prot	c0.16	0.13		0.05	0.06		0.22	c0.55		c0.05	0.19	
v/s Ratio Perm						0.08			0.05			
v/c Ratio	0.97	0.63		0.62	0.64	0.32	0.72	0.93	0.06	0.99	0.57	
Uniform Delay, d1	62.1	58.2		66.1	66.3	64.3	45.6	28.3	13.3	71.0	41.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	29.1	4.6		8.0	9.0	1.3	4.4	9.2	0.1	88.5	1.5	
Delay (s)	91.2	62.9		74.2	75.3	65.7	49.9	37.6	13.4	159.4	43.3	
Level of Service	F	E		E	E	E	D	D	B	F	D	
Approach Delay (s)		83.0			71.2			38.8			53.7	
Approach LOS		F			E			D			D	

Intersection Summary				
HCM Average Control Delay	52.0	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.94			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	86.6%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95					1.00	0.95	1.00		0.95	1.00
Frt	1.00	0.93					1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	3304					1770	3539	1583		3539	1583
Flt Permitted	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770	3304					1770	3539	1583		3539	1583
Volume (vph)	401	241	192	0	0	0	207	969	411	0	649	351
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)	436	262	209	0	0	0	225	1053	447	0	705	382
RTOR Reduction (vph)	0	115	0	0	0	0	0	0	143	0	0	226
Lane Group Flow (vph)	436	356	0	0	0	0	225	1053	304	0	705	156
Turn Type	Prot						Prot		Perm			Perm
Protected Phases	7	4					5	2			6	
Permitted Phases									2			6
Actuated Green, G (s)	40.1	40.1					37.0	101.9	101.9		60.9	60.9
Effective Green, g (s)	40.1	40.1					37.0	101.9	101.9		60.9	60.9
Actuated g/C Ratio	0.27	0.27					0.25	0.68	0.68		0.41	0.41
Clearance Time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	473	883					437	2404	1075		1437	643
v/s Ratio Prot	c0.25	0.14					c0.13	0.30			0.20	
v/s Ratio Perm									0.28			0.24
v/c Ratio	0.92	0.40					0.51	0.44	0.28		0.49	0.24
Uniform Delay, d1	53.4	45.1					48.8	11.0	9.5		33.0	29.3
Progression Factor	1.00	1.00					0.96	0.83	0.32		0.26	0.05
Incremental Delay, d2	23.5	0.3					0.9	0.5	0.6		0.9	0.7
Delay (s)	76.9	45.4					47.8	9.6	3.7		9.3	2.2
Level of Service	E	D					D	A	A		A	A
Approach Delay (s)		60.6			0.0			13.0			6.8	
Approach LOS		E			A			B			A	

Intersection Summary				
HCM Average Control Delay	22.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.67			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	61.6%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.98	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1831	1583	1770		1583		3529		1770	3539	
Flt Permitted		0.98	1.00	0.46		1.00		1.00		0.16	1.00	
Satd. Flow (perm)		1831	1583	849		1583		3529		290	3539	
Volume (vph)	35	64	175	17	0	31	0	1354	27	121	611	0
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)	38	70	190	18	0	34	0	1472	29	132	664	0
RTOR Reduction (vph)	0	0	172	0	0	31	0	1	0	0	0	0
Lane Group Flow (vph)	0	108	18	18	0	3	0	1500	0	132	664	0
Turn Type	Perm		Perm	custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		13.9	13.9	13.9		13.9		128.1		128.1	128.1	
Effective Green, g (s)		13.9	13.9	13.9		13.9		128.1		128.1	128.1	
Actuated g/C Ratio		0.09	0.09	0.09		0.09		0.85		0.85	0.85	
Clearance Time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		170	147	79		147		3014		248	3022	
v/s Ratio Prot								0.43			0.19	
v/s Ratio Perm		0.06	0.12	0.02		0.02				c0.46		
v/c Ratio		0.64	0.12	0.23		0.02		0.50		0.53	0.22	
Uniform Delay, d1		65.6	62.4	63.1		61.9		2.8		2.9	2.0	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.66	0.26	
Incremental Delay, d2		7.5	0.4	1.5		0.1		0.6		7.2	0.2	
Delay (s)		73.2	62.8	64.5		61.9		3.4		12.1	0.7	
Level of Service		E	E	E		E		A		B	A	
Approach Delay (s)		66.6			62.8			3.4			2.6	
Approach LOS		E			E			A			A	

Intersection Summary				
HCM Average Control Delay	11.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	67.0%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	46	632	49	104	305	85	57	8	107	61	12	19
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)	50	687	53	113	332	92	62	9	116	66	13	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	424			740			1398	1464	714	1395	1444	378
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	424			740			1398	1464	714	1395	1444	378
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 %	96			87			32	92	73	7	88	97
cM capacity (veh/h)	1135			866			91	107	432	71	110	669

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	50	740	113	424	71	116	100
Volume Left	50	0	113	0	62	0	66
Volume Right	0	53	0	92	0	116	21
cSH	1135	1700	866	1700	93	432	92
Volume to Capacity	0.04	0.44	0.13	0.25	0.76	0.27	1.08
Queue Length (ft)	3	0	11	0	99	27	166
Control Delay (s)	8.3	0.0	9.8	0.0	118.0	16.4	202.5
Lane LOS	A		A		F	C	F
Approach Delay (s)	0.5		2.1		54.8		202.5
Approach LOS					F		F

Intersection Summary				
Average Delay	19.8			
Intersection Capacity Utilization	63.8%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	
Lane Util. Factor		1.00					1.00	0.95			0.95	
Frt		0.86					1.00	1.00			1.00	
Flt Protected		1.00					0.95	1.00			1.00	
Satd. Flow (prot)		1611					1770	3539			3536	
Flt Permitted		1.00					0.95	1.00			1.00	
Satd. Flow (perm)		1611					1770	3539			3536	
Volume (vph)	0	0	37	0	0	0	16	619	0	0	1583	10
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	40	0	0	0	17	673	0	0	1721	11
RTOR Reduction (vph)	0	39	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1	0	0	0	0	17	673	0	0	1732	0
Turn Type	Prot			Prot			Prot					
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases												
Actuated Green, G (s)		3.3					3.1	98.7			91.6	
Effective Green, g (s)		3.3					3.1	98.7			91.6	
Actuated g/C Ratio		0.03					0.03	0.90			0.83	
Clearance Time (s)		4.0					4.0	4.0			4.0	
Vehicle Extension (s)		3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)		48					50	3175			2945	
v/s Ratio Prot		c0.02					c0.01	0.19			c0.49	
v/s Ratio Perm												
v/c Ratio		0.03					0.34	0.21			0.59	
Uniform Delay, d1		51.8					52.4	0.7			3.0	
Progression Factor		1.00					0.79	0.61			1.00	
Incremental Delay, d2		0.2					3.9	0.1			0.9	
Delay (s)		52.0					45.6	0.6			3.9	
Level of Service		D					D	A			A	
Approach Delay (s)		52.0			0.0			1.7			3.9	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM Average Control Delay	4.1	HCM Level of Service		A
HCM Volume to Capacity ratio	0.59			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	54.1%	ICU Level of Service		A
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00	1.00		0.95	1.00	1.00	0.95	1.00
Frt		0.90			1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.95	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1659			1770	1583		3539	1583	1770	3539	1583
Flt Permitted		0.96			0.75	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1618			1403	1583		3539	1583	1770	3539	1583
Volume (vph)	2	0	5	18	0	10	0	696	13	8	1761	1
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	0	5	20	0	11	0	757	14	9	1914	1
RTOR Reduction (vph)	0	4	0	0	0	9	0	0	4	0	0	0
Lane Group Flow (vph)	0	3	0	0	20	2	0	757	10	9	1914	1
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)		16.8			16.8	16.8		80.0	80.0	1.2	85.2	85.2
Effective Green, g (s)		16.8			16.8	16.8		80.0	80.0	1.2	85.2	85.2
Actuated g/C Ratio		0.15			0.15	0.15		0.73	0.73	0.01	0.77	0.77
Clearance Time (s)		4.0			4.0	4.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		247			214	242		2574	1151	19	2741	1226
v/s Ratio Prot								0.21		0.01	c0.54	
v/s Ratio Perm		0.00			c0.01	0.01			0.01			0.00
v/c Ratio		0.01			0.09	0.01		0.29	0.01	0.47	0.70	0.00
Uniform Delay, d1		39.6			40.1	39.5		5.2	4.1	54.1	6.1	2.8
Progression Factor		1.00			1.00	1.00		1.25	1.89	1.20	0.69	0.83
Incremental Delay, d2		0.0			0.2	0.0		0.3	0.0	15.5	1.3	0.0
Delay (s)		39.6			40.2	39.5		6.8	7.8	80.7	5.5	2.3
Level of Service		D			D	D		A	A	F	A	A
Approach Delay (s)		39.6			40.0			6.8			5.9	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	6.6	HCM Level of Service		A
HCM Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	58.7%	ICU Level of Service		B
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	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)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Volume (vph)	24	242	102	698	1872	11
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	263	111	759	2035	12
RTOR Reduction (vph)	0	168	0	0	0	3
Lane Group Flow (vph)	26	95	111	759	2035	9
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	11.5	11.5	11.4	90.5	75.1	75.1
Effective Green, g (s)	11.5	11.5	11.4	90.5	75.1	75.1
Actuated g/C Ratio	0.10	0.10	0.10	0.82	0.68	0.68
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	165	183	2912	2416	1081
v/s Ratio Prot	0.01		c0.06	0.21	c0.57	
v/s Ratio Perm		0.17				0.01
v/c Ratio	0.14	0.57	0.61	0.26	0.84	0.01
Uniform Delay, d1	44.8	46.9	47.2	2.2	13.0	5.6
Progression Factor	1.00	1.00	0.98	0.93	0.75	1.24
Incremental Delay, d2	0.3	4.8	5.5	0.2	3.0	0.0
Delay (s)	45.1	51.7	51.8	2.3	12.7	6.9
Level of Service	D	D	D	A	B	A
Approach Delay (s)	51.1			8.6	12.7	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	15.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	73.4%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1782	1583		1696		1770	3539	1583	1770	3539	1583
Flt Permitted		0.73	1.00		0.85		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1353	1583		1475		1770	3539	1583	1770	3539	1583
Volume (vph)	28	3	148	25	3	29	102	698	27	11	2170	22
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)	30	3	161	27	3	32	111	759	29	12	2359	24
RTOR Reduction (vph)	0	0	107	0	29	0	0	0	6	0	0	6
Lane Group Flow (vph)	0	33	54	0	33	0	111	759	23	12	2359	18
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)		9.5	9.5		9.5		10.2	87.6	87.6	0.9	78.3	78.3
Effective Green, g (s)		9.5	9.5		9.5		10.2	87.6	87.6	0.9	78.3	78.3
Actuated g/C Ratio		0.09	0.09		0.09		0.09	0.80	0.80	0.01	0.71	0.71
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
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)		117	137		127		164	2818	1261	14	2519	1127
v/s Ratio Prot							c0.06	0.21		0.01	c0.67	
v/s Ratio Perm		0.02	0.10		0.04				0.02			0.02
v/c Ratio		0.28	0.39		0.26		0.68	0.27	0.02	0.86	0.94	0.02
Uniform Delay, d1		47.1	47.5		47.0		48.3	2.9	2.3	54.5	13.7	4.6
Progression Factor		1.00	1.00		1.00		1.00	1.00	1.00	1.28	0.26	0.04
Incremental Delay, d2		1.3	1.9		1.1		10.5	0.2	0.0	121.3	5.3	0.0
Delay (s)		48.4	49.4		48.0		58.8	3.1	2.3	190.9	8.9	0.2
Level of Service		D	D		D		E	A	A	F	A	A
Approach Delay (s)		49.2			48.0			10.0			9.7	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	12.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	85.6%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		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	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	1786		1681	1733	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	1786		1681	1733	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	100	58	22	184	78	35	117	460	135	160	1641	788
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)	109	63	24	200	85	38	127	500	147	174	1784	857
RTOR Reduction (vph)	0	14	0	0	0	33	0	0	75	0	0	288
Lane Group Flow (vph)	109	73	0	139	146	5	127	500	72	174	1784	569
Turn Type	Split			Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	9.7	9.7		13.9	13.9	13.9	9.8	52.6	52.6	14.8	57.6	57.6
Effective Green, g (s)	9.7	9.7		13.9	13.9	13.9	9.8	52.6	52.6	14.8	57.6	57.6
Actuated g/C Ratio	0.09	0.09		0.13	0.13	0.13	0.09	0.49	0.49	0.14	0.54	0.54
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)	311	162		218	225	206	162	1740	778	245	1905	852
v/s Ratio Prot	0.03	c0.05		0.08	c0.08		0.07	0.14		c0.10	0.50	
v/s Ratio Perm						0.02			0.09			0.54
v/c Ratio	0.35	0.45		0.64	0.65	0.02	0.78	0.29	0.09	0.71	0.94	0.67
Uniform Delay, d1	45.7	46.1		44.2	44.2	40.6	47.6	16.1	14.5	44.1	23.0	17.8
Progression Factor	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	0.7	2.0		6.0	6.3	0.0	21.5	0.4	0.2	9.3	10.3	4.1
Delay (s)	46.4	48.1		50.2	50.5	40.7	69.1	16.5	14.7	53.4	33.2	22.0
Level of Service	D	D		D	D	D	E	B	B	D	C	C
Approach Delay (s)		47.2			49.2			24.8			31.1	
Approach LOS		D			D			C			C	

Intersection Summary				
HCM Average Control Delay	32.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.85			
Actuated Cycle Length (s)	107.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	75.7%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95					1.00	0.95	1.00		0.95	1.00
Frt	1.00	0.97					1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	3423					1770	3539	1583		3539	1583
Flt Permitted	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770	3423					1770	3539	1583		3539	1583
Volume (vph)	243	234	65	0	0	0	242	818	429	0	586	605
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)	264	254	71	0	0	0	263	889	466	0	637	658
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	79	0	0	370
Lane Group Flow (vph)	264	300	0	0	0	0	263	889	387	0	637	288
Turn Type	Prot						Prot		Perm			Perm
Protected Phases	7	4					5	2			6	
Permitted Phases									2			6
Actuated Green, G (s)	20.9	20.9					29.0	81.1	81.1		48.1	48.1
Effective Green, g (s)	20.9	20.9					29.0	81.1	81.1		48.1	48.1
Actuated g/C Ratio	0.19	0.19					0.26	0.74	0.74		0.44	0.44
Clearance Time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	336	650					467	2609	1167		1548	692
v/s Ratio Prot	c0.15	0.09					c0.15	0.25			0.18	
v/s Ratio Perm									0.29			0.42
v/c Ratio	0.79	0.46					0.56	0.34	0.33		0.41	0.42
Uniform Delay, d1	42.4	39.6					35.0	5.1	5.0		21.2	21.3
Progression Factor	1.00	1.00					0.98	0.72	0.43		1.00	1.00
Incremental Delay, d2	11.4	0.5					1.4	0.3	0.7		0.8	1.8
Delay (s)	53.9	40.1					35.8	4.0	2.9		22.0	23.1
Level of Service	D	D					D	A	A		C	C
Approach Delay (s)		46.3			0.0			8.8			22.6	
Approach LOS		D			A			A			C	

Intersection Summary				
HCM Average Control Delay	20.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	57.5%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.98	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1833	1583	1770		1583		3530		1770	3539	
Flt Permitted		0.98	1.00	0.72		1.00		1.00		0.18	1.00	
Satd. Flow (perm)		1833	1583	1342		1583		3530		343	3539	
Volume (vph)	17	35	143	13	0	147	0	1213	22	87	532	0
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	38	155	14	0	160	0	1318	24	95	578	0
RTOR Reduction (vph)	0	0	139	0	0	59	0	1	0	0	0	0
Lane Group Flow (vph)	0	56	16	14	0	101	0	1341	0	95	578	0
Turn Type	Perm		Perm	custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		11.5	11.5	11.5		11.5		90.5		90.5	90.5	
Effective Green, g (s)		11.5	11.5	11.5		11.5		90.5		90.5	90.5	
Actuated g/C Ratio		0.10	0.10	0.10		0.10		0.82		0.82	0.82	
Clearance Time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		192	165	140		165		2904		282	2912	
v/s Ratio Prot								c0.38			0.16	
v/s Ratio Perm		0.03	0.10	0.01		0.10				0.28		
v/c Ratio		0.29	0.10	0.10		0.61		0.46		0.34	0.20	
Uniform Delay, d1		45.5	44.6	44.6		47.1		2.8		2.4	2.1	
Progression Factor		1.00	1.00	1.00		1.00		1.00		2.07	0.36	
Incremental Delay, d2		0.8	0.3	0.3		6.6		0.5		3.0	0.1	
Delay (s)		46.3	44.8	44.9		53.7		3.3		7.9	0.9	
Level of Service		D	D	D		D		A		A	A	
Approach Delay (s)		45.2			53.0			3.3			1.9	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	10.2	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	58.5%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	28	217	52	186	698	39	92	14	82	30	9	56
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)	30	236	57	202	759	42	100	15	89	33	10	61
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	801			292			1554	1530	264	1489	1538	780
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	801			292			1554	1530	264	1489	1538	780
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 %	96			84			0	84	88	52	90	85
cM capacity (veh/h)	822			1269			61	95	775	68	94	395

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	30	292	202	801	115	89	103
Volume Left	30	0	202	0	100	0	33
Volume Right	0	57	0	42	0	89	61
cSH	822	1700	1269	1700	64	775	140
Volume to Capacity	0.04	0.17	0.16	0.47	1.79	0.12	0.74
Queue Length (ft)	3	0	14	0	262	10	108
Control Delay (s)	9.5	0.0	8.4	0.0	515.9	10.3	81.4
Lane LOS	A		A		F	B	F
Approach Delay (s)	0.9		1.7		295.3		81.4
Approach LOS					F		F

Intersection Summary				
Average Delay	43.3			
Intersection Capacity Utilization	64.9%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	
Lane Util. Factor		1.00					1.00	0.95			0.95	
Frt		0.90					1.00	1.00			1.00	
Flt Protected		0.99					0.95	1.00			1.00	
Satd. Flow (prot)		1651					1770	3539			3528	
Flt Permitted		0.96					0.95	1.00			1.00	
Satd. Flow (perm)		1602					1770	3539			3528	
Volume (vph)	6	0	21	0	0	0	19	2257	0	0	861	18
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	0	23	0	0	0	21	2453	0	0	936	20
RTOR Reduction (vph)	0	19	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	11	0	0	0	0	21	2453	0	0	955	0
Turn Type	Prot			Prot			Prot					
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases												
Actuated Green, G (s)		18.0					2.8	84.0			77.2	
Effective Green, g (s)		18.0					2.8	84.0			77.2	
Actuated g/C Ratio		0.16					0.03	0.76			0.70	
Clearance Time (s)		4.0					4.0	4.0			4.0	
Vehicle Extension (s)		3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)		262					45	2703			2476	
v/s Ratio Prot							0.01	c0.69			0.27	
v/s Ratio Perm		c0.02										
v/c Ratio		0.04					0.47	0.91			0.39	
Uniform Delay, d1		38.7					52.9	10.0			6.7	
Progression Factor		1.00					0.89	1.05			1.00	
Incremental Delay, d2		0.1					3.5	2.8			0.5	
Delay (s)		38.8					50.4	13.4			7.2	
Level of Service		D					D	B			A	
Approach Delay (s)		38.8			0.0			13.7			7.2	
Approach LOS		D			A			B			A	

Intersection Summary				
HCM Average Control Delay	12.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	72.4%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.97			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1735			1770	1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.87			0.75	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1571			1397	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	8	0	3	13	0	17	3	2205	23	12	839	4
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)	9	0	3	14	0	18	3	2397	25	13	912	4
RTOR Reduction (vph)	0	3	0	0	0	15	0	0	5	0	0	1
Lane Group Flow (vph)	0	9	0	0	14	3	3	2397	20	13	912	3
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)		16.8			16.8	16.8	1.2	78.8	78.8	2.4	80.0	80.0
Effective Green, g (s)		16.8			16.8	16.8	1.2	78.8	78.8	2.4	80.0	80.0
Actuated g/C Ratio		0.15			0.15	0.15	0.01	0.72	0.72	0.02	0.73	0.73
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)		240			213	242	19	2535	1134	39	2574	1151
v/s Ratio Prot							0.00	c0.68		c0.01	0.26	
v/s Ratio Perm		0.01			0.01	0.01			0.02			0.00
v/c Ratio		0.04			0.07	0.01	0.16	0.95	0.02	0.33	0.35	0.00
Uniform Delay, d1		39.7			39.9	39.6	53.9	13.7	4.5	53.0	5.5	4.1
Progression Factor		1.00			1.00	1.00	1.03	0.83	0.98	1.09	0.64	0.69
Incremental Delay, d2		0.1			0.1	0.0	2.3	5.9	0.0	4.7	0.4	0.0
Delay (s)		39.8			40.0	39.6	57.6	17.3	4.4	62.4	3.9	2.8
Level of Service		D			D	D	E	B	A	E	A	A
Approach Delay (s)		39.8			39.8			17.2			4.7	
Approach LOS		D			D			B			A	

Intersection Summary				
HCM Average Control Delay	14.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	77.6%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	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)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Volume (vph)	22	111	197	2216	854	28
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	121	214	2409	928	30
RTOR Reduction (vph)	0	113	0	0	0	11
Lane Group Flow (vph)	24	8	214	2409	928	19
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	7.4	7.4	22.0	94.6	68.6	68.6
Effective Green, g (s)	7.4	7.4	22.0	94.6	68.6	68.6
Actuated g/C Ratio	0.07	0.07	0.20	0.86	0.62	0.62
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	119	106	354	3044	2207	987
v/s Ratio Prot	0.01		0.12	c0.68	0.26	
v/s Ratio Perm		0.08				0.02
v/c Ratio	0.20	0.08	0.60	0.79	0.42	0.02
Uniform Delay, d1	48.5	48.1	40.0	3.4	10.6	7.9
Progression Factor	1.00	1.00	1.00	1.00	1.33	2.93
Incremental Delay, d2	0.8	0.3	2.9	2.2	0.6	0.0
Delay (s)	49.3	48.4	42.9	5.6	14.7	23.1
Level of Service	D	D	D	A	B	C
Approach Delay (s)	48.6			8.6	14.9	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	11.8	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	71.3%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.96		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1781	1583		1741		1770	3539	1583	1770	3539	1583
Flt Permitted		0.79	1.00		0.75		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1469	1583		1366		1770	3539	1583	1770	3539	1583
Volume (vph)	21	2	94	24	0	6	133	2399	36	15	1006	26
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	2	102	26	0	7	145	2608	39	16	1093	28
RTOR Reduction (vph)	0	0	96	0	7	0	0	0	5	0	0	7
Lane Group Flow (vph)	0	25	6	0	26	0	145	2608	34	16	1093	21
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)		8.2	8.2		8.2		25.4	126.5	126.5	3.3	104.4	104.4
Effective Green, g (s)		8.2	8.2		8.2		25.4	126.5	126.5	3.3	104.4	104.4
Actuated g/C Ratio		0.05	0.05		0.05		0.17	0.84	0.84	0.02	0.70	0.70
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
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)		80	87		75		300	2985	1335	39	2463	1102
v/s Ratio Prot							0.08	c0.74		0.01	c0.31	
v/s Ratio Perm		0.02	0.06		0.02				0.02			0.02
v/c Ratio		0.31	0.06		0.35		0.48	0.87	0.03	0.41	0.44	0.02
Uniform Delay, d1		68.2	67.3		68.3		56.4	7.0	1.9	72.4	10.0	7.0
Progression Factor		1.00	1.00		1.00		0.77	0.14	0.00	1.00	1.00	1.00
Incremental Delay, d2		2.2	0.3		2.8		0.1	0.4	0.0	6.9	0.6	0.0
Delay (s)		70.4	67.6		71.2		43.5	1.4	0.0	79.3	10.6	7.1
Level of Service		E	E		E		D	A	A	E	B	A
Approach Delay (s)		68.1			71.2			3.5			11.5	
Approach LOS		E			E			A			B	

Intersection Summary				
HCM Average Control Delay	8.3	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	88.0%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.90		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	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	1685		1681	1746	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	1685		1681	1746	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	543	69	121	111	66	121	395	2018	78	93	862	102
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)	590	75	132	121	72	132	429	2193	85	101	937	111
RTOR Reduction (vph)	0	43	0	0	0	91	0	0	19	0	0	58
Lane Group Flow (vph)	590	164	0	94	99	41	429	2193	66	101	937	53
Turn Type	Split			Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)	22.0	22.0		13.1	13.1	13.1	47.0	87.7	87.7	11.2	51.9	51.9
Effective Green, g (s)	22.0	22.0		13.1	13.1	13.1	47.0	87.7	87.7	11.2	51.9	51.9
Actuated g/C Ratio	0.15	0.15		0.09	0.09	0.09	0.31	0.58	0.58	0.07	0.35	0.35
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)	504	247		147	152	138	555	2069	926	132	1224	548
v/s Ratio Prot	c0.17	0.12		0.06	0.06		0.24	c0.62		0.06	c0.26	
v/s Ratio Perm						0.08			0.05			0.07
v/c Ratio	1.17	0.67		0.64	0.65	0.30	0.77	1.06	0.07	0.77	0.77	0.10
Uniform Delay, d1	64.0	60.5		66.2	66.2	64.1	46.7	31.1	13.5	68.1	43.6	33.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.96	1.38	0.87	0.83	1.18
Incremental Delay, d2	96.3	6.6		8.8	9.6	1.2	6.3	37.5	0.1	21.3	4.3	0.3
Delay (s)	160.3	67.1		75.0	75.8	65.3	53.0	67.4	18.8	80.7	40.4	39.5
Level of Service	F	E		E	E	E	D	E	B	F	D	D
Approach Delay (s)		136.1			71.3			63.5			43.9	
Approach LOS		F			E			E			D	

Intersection Summary			
HCM Average Control Delay	71.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	94.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95					1.00	0.95	1.00		0.95	1.00
Frt	1.00	0.93					1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	3304					1770	3539	1583		3539	1583
Flt Permitted	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770	3304					1770	3539	1583		3539	1583
Volume (vph)	446	261	208	0	0	0	224	1088	445	0	719	390
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)	485	284	226	0	0	0	243	1183	484	0	782	424
RTOR Reduction (vph)	0	111	0	0	0	0	0	0	148	0	0	238
Lane Group Flow (vph)	485	399	0	0	0	0	243	1183	336	0	782	186
Turn Type	Prot						Prot		Perm			Perm
Protected Phases	7	4					5	2			6	
Permitted Phases									2			6
Actuated Green, G (s)	44.6	44.6					37.0	97.4	97.4		56.4	56.4
Effective Green, g (s)	44.6	44.6					37.0	97.4	97.4		56.4	56.4
Actuated g/C Ratio	0.30	0.30					0.25	0.65	0.65		0.38	0.38
Clearance Time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	526	982					437	2298	1028		1331	595
v/s Ratio Prot	c0.27	0.15					c0.14	0.33			0.22	
v/s Ratio Perm									0.31			0.27
v/c Ratio	0.92	0.41					0.56	0.51	0.33		0.59	0.31
Uniform Delay, d1	51.0	42.1					49.3	13.9	11.7		37.5	33.1
Progression Factor	1.00	1.00					0.95	0.83	0.36		0.34	0.13
Incremental Delay, d2	21.8	0.3					1.4	0.7	0.7		1.3	0.9
Delay (s)	72.8	42.4					48.3	12.2	5.0		13.9	5.2
Level of Service	E	D					D	B	A		B	A
Approach Delay (s)		57.2			0.0			15.0			10.8	
Approach LOS		E			A			B			B	

Intersection Summary			
HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.98	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1830	1583	1770		1583		3529		1770	3539	
Flt Permitted		0.98	1.00	0.43		1.00		1.00		0.12	1.00	
Satd. Flow (perm)		1830	1583	804		1583		3529		232	3539	
Volume (vph)	38	69	189	18	0	34	0	1513	29	131	678	0
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)	41	75	205	20	0	37	0	1645	32	142	737	0
RTOR Reduction (vph)	0	0	185	0	0	33	0	1	0	0	0	0
Lane Group Flow (vph)	0	116	20	20	0	4	0	1676	0	142	737	0
Turn Type	Perm		Perm	custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		14.5	14.5	14.5		14.5		127.5		127.5	127.5	
Effective Green, g (s)		14.5	14.5	14.5		14.5		127.5		127.5	127.5	
Actuated g/C Ratio		0.10	0.10	0.10		0.10		0.85		0.85	0.85	
Clearance Time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		177	153	78		153		3000		197	3008	
v/s Ratio Prot								0.48			0.21	
v/s Ratio Perm		0.06	0.13	0.02		0.02				c0.61		
v/c Ratio		0.66	0.13	0.26		0.02		0.56		0.72	0.25	
Uniform Delay, d1		65.3	62.0	62.8		61.3		3.2		4.4	2.1	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.99	0.27	
Incremental Delay, d2		8.4	0.4	1.7		0.1		0.8		17.6	0.2	
Delay (s)		73.8	62.4	64.5		61.4		4.0		26.3	0.7	
Level of Service		E	E	E		E		A		C	A	
Approach Delay (s)		66.5			62.5			4.0			4.9	
Approach LOS		E			E			A			A	

Intersection Summary				
HCM Average Control Delay	12.2	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	72.4%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	50	662	53	113	316	92	62	9	116	66	14	21
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)	54	720	58	123	343	100	67	10	126	72	15	23
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	443			777			1477	1546	748	1472	1525	393
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	443			777			1477	1546	748	1472	1525	393
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 %	95			85			11	89	69	0	84	97
cM capacity (veh/h)	1117			839			76	93	412	57	96	655

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	54	777	123	443	77	126	110
Volume Left	54	0	123	0	67	0	72
Volume Right	0	58	0	100	0	126	23
cSH	1117	1700	839	1700	78	412	76
Volume to Capacity	0.05	0.46	0.15	0.26	0.99	0.31	1.44
Queue Length (ft)	4	0	13	0	134	32	221
Control Delay (s)	8.4	0.0	10.0	0.0	193.8	17.5	353.4
Lane LOS	A		B		F	C	F
Approach Delay (s)	0.5		2.2		84.5		353.4
Approach LOS					F		F

Intersection Summary				
Average Delay	33.7			
Intersection Capacity Utilization	66.7%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	
Lane Util. Factor		1.00					1.00	0.95			0.95	
Frt		0.86					1.00	1.00			1.00	
Flt Protected		1.00					0.95	1.00			1.00	
Satd. Flow (prot)		1611					1770	3539			3536	
Flt Permitted		1.00					0.95	1.00			1.00	
Satd. Flow (perm)		1611					1770	3539			3536	
Volume (vph)	0	0	37	0	0	0	16	633	0	0	1589	10
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	40	0	0	0	17	688	0	0	1727	11
RTOR Reduction (vph)	0	39	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1	0	0	0	0	17	688	0	0	1738	0
Turn Type	Prot			Prot			Prot					
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases												
Actuated Green, G (s)		3.3					3.1	98.7			91.6	
Effective Green, g (s)		3.3					3.1	98.7			91.6	
Actuated g/C Ratio		0.03					0.03	0.90			0.83	
Clearance Time (s)		4.0					4.0	4.0			4.0	
Vehicle Extension (s)		3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)		48					50	3175			2945	
v/s Ratio Prot		c0.02					c0.01	0.19			c0.49	
v/s Ratio Perm												
v/c Ratio		0.03					0.34	0.22			0.59	
Uniform Delay, d1		51.8					52.4	0.7			3.0	
Progression Factor		1.00					0.79	0.60			1.00	
Incremental Delay, d2		0.2					3.9	0.2			0.9	
Delay (s)		52.0					45.5	0.6			3.9	
Level of Service		D					D	A			A	
Approach Delay (s)		52.0			0.0			1.7			3.9	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM Average Control Delay	4.0	HCM Level of Service		A
HCM Volume to Capacity ratio	0.59			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	54.2%	ICU Level of Service		A
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00	1.00		0.95	1.00	1.00	0.95	1.00
Frt		0.90			1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.95	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1659			1770	1583		3539	1583	1770	3539	1583
Flt Permitted		0.96			0.75	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1618			1403	1583		3539	1583	1770	3539	1583
Volume (vph)	2	0	5	18	0	10	0	710	13	8	1767	1
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	0	5	20	0	11	0	772	14	9	1921	1
RTOR Reduction (vph)	0	4	0	0	0	9	0	0	4	0	0	0
Lane Group Flow (vph)	0	3	0	0	20	2	0	772	10	9	1921	1
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)		16.8			16.8	16.8		80.0	80.0	1.2	85.2	85.2
Effective Green, g (s)		16.8			16.8	16.8		80.0	80.0	1.2	85.2	85.2
Actuated g/C Ratio		0.15			0.15	0.15		0.73	0.73	0.01	0.77	0.77
Clearance Time (s)		4.0			4.0	4.0		4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		247			214	242		2574	1151	19	2741	1226
v/s Ratio Prot								0.22		0.01	c0.54	
v/s Ratio Perm		0.00			c0.01	0.01			0.01			0.00
v/c Ratio		0.01			0.09	0.01		0.30	0.01	0.47	0.70	0.00
Uniform Delay, d1		39.6			40.1	39.5		5.2	4.1	54.1	6.1	2.8
Progression Factor		1.00			1.00	1.00		1.25	1.89	1.21	0.69	0.83
Incremental Delay, d2		0.0			0.2	0.0		0.3	0.0	15.5	1.3	0.0
Delay (s)		39.6			40.2	39.5		6.8	7.8	80.7	5.5	2.3
Level of Service		D			D	D		A	A	F	A	A
Approach Delay (s)		39.6			40.0			6.9			5.9	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	6.6	HCM Level of Service		A
HCM Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	58.8%	ICU Level of Service		B
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	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)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Volume (vph)	24	242	102	712	1878	11
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	263	111	774	2041	12
RTOR Reduction (vph)	0	168	0	0	0	3
Lane Group Flow (vph)	26	95	111	774	2041	9
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	11.5	11.5	11.4	90.5	75.1	75.1
Effective Green, g (s)	11.5	11.5	11.4	90.5	75.1	75.1
Actuated g/C Ratio	0.10	0.10	0.10	0.82	0.68	0.68
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	165	183	2912	2416	1081
v/s Ratio Prot	0.01		c0.06	0.22	c0.58	
v/s Ratio Perm		0.17				0.01
v/c Ratio	0.14	0.57	0.61	0.27	0.84	0.01
Uniform Delay, d1	44.8	46.9	47.2	2.2	13.1	5.6
Progression Factor	1.00	1.00	0.98	0.93	0.75	1.26
Incremental Delay, d2	0.3	4.8	5.5	0.2	3.0	0.0
Delay (s)	45.1	51.7	51.8	2.3	12.8	7.0
Level of Service	D	D	D	A	B	A
Approach Delay (s)	51.1			8.5	12.8	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	15.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	110.0	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				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1782	1583		1696		1770	3539	1583	1770	3539	1583
Flt Permitted		0.73	1.00		0.85		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1353	1583		1475		1770	3539	1583	1770	3539	1583
Volume (vph)	28	3	148	25	3	29	102	712	27	11	2176	22
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)	30	3	161	27	3	32	111	774	29	12	2365	24
RTOR Reduction (vph)	0	0	107	0	29	0	0	0	6	0	0	6
Lane Group Flow (vph)	0	33	54	0	33	0	111	774	23	12	2365	18
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)		9.5	9.5		9.5		10.2	87.6	87.6	0.9	78.3	78.3
Effective Green, g (s)		9.5	9.5		9.5		10.2	87.6	87.6	0.9	78.3	78.3
Actuated g/C Ratio		0.09	0.09		0.09		0.09	0.80	0.80	0.01	0.71	0.71
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
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)		117	137		127		164	2818	1261	14	2519	1127
v/s Ratio Prot							c0.06	0.22		0.01	c0.67	
v/s Ratio Perm		0.02	0.10		0.04				0.02			0.02
v/c Ratio		0.28	0.39		0.26		0.68	0.27	0.02	0.86	0.94	0.02
Uniform Delay, d1		47.1	47.5		47.0		48.3	2.9	2.3	54.5	13.8	4.6
Progression Factor		1.00	1.00		1.00		1.00	1.00	1.00	1.29	0.26	0.04
Incremental Delay, d2		1.3	1.9		1.1		10.5	0.2	0.0	120.9	5.4	0.0
Delay (s)		48.4	49.4		48.0		58.8	3.2	2.3	191.0	9.0	0.2
Level of Service		D	D		D		E	A	A	F	A	A
Approach Delay (s)		49.2			48.0			9.9			9.8	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	12.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	85.8%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1752		1681	1734	1583	1770	3539	1583	1770	4837	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1752		1681	1734	1583	1770	3539	1583	1770	4837	
Volume (vph)	115	67	44	186	80	35	117	460	135	160	1643	793
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)	125	73	48	202	87	38	127	500	147	174	1786	862
RTOR Reduction (vph)	0	22	0	0	0	33	0	0	79	0	69	0
Lane Group Flow (vph)	125	99	0	141	148	5	127	500	68	174	2579	0
Turn Type	Split			Split		Perm	Prot		Perm	Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	11.3	11.3		13.7	13.7	13.7	9.8	51.2	51.2	17.8	59.2	
Effective Green, g (s)	11.3	11.3		13.7	13.7	13.7	9.8	51.2	51.2	17.8	59.2	
Actuated g/C Ratio	0.10	0.10		0.12	0.12	0.12	0.09	0.47	0.47	0.16	0.54	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
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)	353	180		209	216	197	158	1647	737	286	2603	
v/s Ratio Prot	0.04	c0.07		0.08	c0.09		c0.07	0.14		0.10	c0.55	
v/s Ratio Perm						0.02			0.09			
v/c Ratio	0.35	0.55		0.67	0.69	0.02	0.80	0.30	0.09	0.61	0.99	
Uniform Delay, d1	46.0	46.9		46.0	46.1	42.3	49.2	18.3	16.4	42.9	25.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.92	0.77	0.51	0.83	0.63	
Incremental Delay, d2	0.6	3.4		8.3	8.7	0.0	23.8	0.5	0.2	2.2	11.6	
Delay (s)	46.6	50.3		54.3	54.8	42.3	69.0	14.6	8.6	37.6	27.4	
Level of Service	D	D		D	D	D	E	B	A	D	C	
Approach Delay (s)		48.4			53.1			22.4			28.0	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	30.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95					1.00	0.95	1.00		0.95	1.00
Frt	1.00	0.97					1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	3423					1770	3539	1583		3539	1583
Flt Permitted	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770	3423					1770	3539	1583		3539	1583
Volume (vph)	243	234	65	0	0	0	242	825	429	0	603	605
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)	264	254	71	0	0	0	263	897	466	0	655	658
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	79	0	0	370
Lane Group Flow (vph)	264	300	0	0	0	0	263	897	387	0	655	288
Turn Type	Prot						Prot		Perm			Perm
Protected Phases	7	4					5	2			6	
Permitted Phases									2			6
Actuated Green, G (s)	20.9	20.9					29.0	81.1	81.1		48.1	48.1
Effective Green, g (s)	20.9	20.9					29.0	81.1	81.1		48.1	48.1
Actuated g/C Ratio	0.19	0.19					0.26	0.74	0.74		0.44	0.44
Clearance Time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	336	650					467	2609	1167		1548	692
v/s Ratio Prot	c0.15	0.09					c0.15	0.25			0.19	
v/s Ratio Perm									0.29			0.42
v/c Ratio	0.79	0.46					0.56	0.34	0.33		0.42	0.42
Uniform Delay, d1	42.4	39.6					35.0	5.1	5.0		21.4	21.3
Progression Factor	1.00	1.00					0.98	0.72	0.43		1.00	1.00
Incremental Delay, d2	11.4	0.5					1.4	0.3	0.7		0.9	1.8
Delay (s)	53.9	40.1					35.8	4.0	2.9		22.2	23.1
Level of Service	D	D					D	A	A		C	C
Approach Delay (s)		46.3			0.0			8.8			22.7	
Approach LOS		D			A			A			C	

Intersection Summary			
HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.98	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1833	1583	1770		1583		3530		1770	3539	
Flt Permitted		0.98	1.00	0.72		1.00		1.00		0.18	1.00	
Satd. Flow (perm)		1833	1583	1342		1583		3530		339	3539	
Volume (vph)	17	35	143	13	0	147	0	1220	22	87	549	0
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	38	155	14	0	160	0	1326	24	95	597	0
RTOR Reduction (vph)	0	0	139	0	0	58	0	1	0	0	0	0
Lane Group Flow (vph)	0	56	16	14	0	102	0	1349	0	95	597	0
Turn Type	Perm		Perm	custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		11.6	11.6	11.6		11.6		90.4		90.4	90.4	
Effective Green, g (s)		11.6	11.6	11.6		11.6		90.4		90.4	90.4	
Actuated g/C Ratio		0.11	0.11	0.11		0.11		0.82		0.82	0.82	
Clearance Time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		193	167	142		167		2901		279	2908	
v/s Ratio Prot								c0.38			0.17	
v/s Ratio Perm		0.03	0.10	0.01		0.10				0.28		
v/c Ratio		0.29	0.10	0.10		0.61		0.47		0.34	0.21	
Uniform Delay, d1		45.4	44.5	44.5		47.0		2.8		2.4	2.1	
Progression Factor		1.00	1.00	1.00		1.00		1.00		2.06	0.35	
Incremental Delay, d2		0.8	0.3	0.3		6.2		0.5		3.1	0.1	
Delay (s)		46.2	44.7	44.8		53.2		3.4		8.0	0.9	
Level of Service		D	D	D		D		A		A	A	
Approach Delay (s)		45.1			52.5			3.4			1.9	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	10.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	58.7%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	28	224	52	186	718	39	92	14	82	30	9	56
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)	30	243	57	202	780	42	100	15	89	33	10	61
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	823			300			1583	1560	272	1518	1567	802
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	823			300			1583	1560	272	1518	1567	802
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 %	96			84			0	83	88	49	89	84
cM capacity (veh/h)	807			1261			58	91	767	64	90	384

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	30	300	202	823	115	89	103
Volume Left	30	0	202	0	100	0	33
Volume Right	0	57	0	42	0	89	61
cSH	807	1700	1261	1700	61	767	133
Volume to Capacity	0.04	0.18	0.16	0.48	1.89	0.12	0.77
Queue Length (ft)	3	0	14	0	270	10	116
Control Delay (s)	9.6	0.0	8.4	0.0	567.1	10.3	90.8
Lane LOS	A		A		F	B	F
Approach Delay (s)	0.9		1.7		324.3		90.8
Approach LOS					F		F

Intersection Summary				
Average Delay	46.7			
Intersection Capacity Utilization	66.0%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	
Lane Util. Factor		1.00					1.00	0.95			0.95	
Frt		0.90					1.00	1.00			1.00	
Flt Protected		0.99					0.95	1.00			1.00	
Satd. Flow (prot)		1651					1770	3539			3528	
Flt Permitted		0.96					0.95	1.00			1.00	
Satd. Flow (perm)		1602					1770	3539			3528	
Volume (vph)	6	0	21	0	0	0	19	2265	0	0	875	18
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	0	23	0	0	0	21	2462	0	0	951	20
RTOR Reduction (vph)	0	19	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	11	0	0	0	0	21	2462	0	0	970	0
Turn Type	Prot			Prot			Prot					
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases												
Actuated Green, G (s)		18.0					2.8	84.0			77.2	
Effective Green, g (s)		18.0					2.8	84.0			77.2	
Actuated g/C Ratio		0.16					0.03	0.76			0.70	
Clearance Time (s)		4.0					4.0	4.0			4.0	
Vehicle Extension (s)		3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)		262					45	2703			2476	
v/s Ratio Prot							0.01	c0.70			0.28	
v/s Ratio Perm		c0.02										
v/c Ratio		0.04					0.47	0.91			0.39	
Uniform Delay, d1		38.7					52.9	10.1			6.7	
Progression Factor		1.00					0.89	1.05			1.00	
Incremental Delay, d2		0.1					3.5	2.9			0.5	
Delay (s)		38.8					50.3	13.5			7.2	
Level of Service		D					D	B			A	
Approach Delay (s)		38.8			0.0			13.9			7.2	
Approach LOS		D			A			B			A	

Intersection Summary				
HCM Average Control Delay	12.2	HCM Level of Service		B
HCM Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	72.6%	ICU Level of Service		C
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.97			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1735			1770	1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.87			0.75	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1571			1397	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	8	0	3	13	0	17	3	2213	23	12	853	4
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)	9	0	3	14	0	18	3	2405	25	13	927	4
RTOR Reduction (vph)	0	3	0	0	0	15	0	0	5	0	0	1
Lane Group Flow (vph)	0	9	0	0	14	3	3	2405	20	13	927	3
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Actuated Green, G (s)		16.8			16.8	16.8	1.2	78.8	78.8	2.4	80.0	80.0
Effective Green, g (s)		16.8			16.8	16.8	1.2	78.8	78.8	2.4	80.0	80.0
Actuated g/C Ratio		0.15			0.15	0.15	0.01	0.72	0.72	0.02	0.73	0.73
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)		240			213	242	19	2535	1134	39	2574	1151
v/s Ratio Prot							0.00	c0.68		c0.01	0.26	
v/s Ratio Perm		0.01			0.01	0.01			0.02			0.00
v/c Ratio		0.04			0.07	0.01	0.16	0.95	0.02	0.33	0.36	0.00
Uniform Delay, d1		39.7			39.9	39.6	53.9	13.8	4.5	53.0	5.5	4.1
Progression Factor		1.00			1.00	1.00	1.03	0.83	0.99	1.09	0.63	0.69
Incremental Delay, d2		0.1			0.1	0.0	2.3	6.1	0.0	4.7	0.4	0.0
Delay (s)		39.8			40.0	39.6	57.6	17.6	4.4	62.3	3.9	2.8
Level of Service		D			D	D	E	B	A	E	A	A
Approach Delay (s)		39.8			39.8			17.5			4.7	
Approach LOS		D			D			B			A	

Intersection Summary				
HCM Average Control Delay	14.2	HCM Level of Service		B
HCM Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	77.8%	ICU Level of Service		D
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	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)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Volume (vph)	22	111	197	2224	868	28
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	121	214	2417	943	30
RTOR Reduction (vph)	0	113	0	0	0	11
Lane Group Flow (vph)	24	8	214	2417	943	19
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	7.4	7.4	22.0	94.6	68.6	68.6
Effective Green, g (s)	7.4	7.4	22.0	94.6	68.6	68.6
Actuated g/C Ratio	0.07	0.07	0.20	0.86	0.62	0.62
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	119	106	354	3044	2207	987
v/s Ratio Prot	0.01		0.12	c0.68	0.27	
v/s Ratio Perm		0.08				0.02
v/c Ratio	0.20	0.08	0.60	0.79	0.43	0.02
Uniform Delay, d1	48.5	48.1	40.0	3.4	10.6	7.9
Progression Factor	1.00	1.00	1.00	1.00	1.34	2.96
Incremental Delay, d2	0.8	0.3	2.9	2.2	0.6	0.0
Delay (s)	49.3	48.4	42.9	5.6	14.8	23.4
Level of Service	D	D	D	A	B	C
Approach Delay (s)	48.6			8.7	15.1	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	11.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	71.5%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85		0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.96		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1781	1583		1741		1770	3539	1583	1770	3539	1583
Flt Permitted		0.79	1.00		0.75		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1469	1583		1366		1770	3539	1583	1770	3539	1583
Volume (vph)	21	2	94	24	0	6	133	2407	36	15	1020	26
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	2	102	26	0	7	145	2616	39	16	1109	28
RTOR Reduction (vph)	0	0	96	0	7	0	0	0	5	0	0	7
Lane Group Flow (vph)	0	25	6	0	26	0	145	2616	34	16	1109	21
Turn Type	Perm		Perm	Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8					2			6
Actuated Green, G (s)		8.2	8.2		8.2		25.4	126.5	126.5	3.3	104.4	104.4
Effective Green, g (s)		8.2	8.2		8.2		25.4	126.5	126.5	3.3	104.4	104.4
Actuated g/C Ratio		0.05	0.05		0.05		0.17	0.84	0.84	0.02	0.70	0.70
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
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)		80	87		75		300	2985	1335	39	2463	1102
v/s Ratio Prot							0.08	c0.74		0.01	c0.31	
v/s Ratio Perm		0.02	0.06		0.02				0.02			0.02
v/c Ratio		0.31	0.06		0.35		0.48	0.88	0.03	0.41	0.45	0.02
Uniform Delay, d1		68.2	67.3		68.3		56.4	7.1	1.9	72.4	10.1	7.0
Progression Factor		1.00	1.00		1.00		0.77	0.14	0.00	1.00	1.00	1.00
Incremental Delay, d2		2.2	0.3		2.8		0.1	0.4	0.0	6.9	0.6	0.0
Delay (s)		70.4	67.6		71.2		43.4	1.4	0.0	79.3	10.7	7.1
Level of Service		E	E		E		D	A	A	E	B	A
Approach Delay (s)		68.1			71.2			3.5			11.6	
Approach LOS		E			E			A			B	

Intersection Summary				
HCM Average Control Delay	8.3	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	88.2%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1679		1681	1748	1583	1770	3539	1583	1770	4999	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1679		1681	1748	1583	1770	3539	1583	1770	4999	
Volume (vph)	550	75	145	114	72	121	395	2018	78	93	869	110
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)	598	82	158	124	78	132	429	2193	85	101	945	120
RTOR Reduction (vph)	0	46	0	0	0	75	0	0	19	0	10	0
Lane Group Flow (vph)	598	194	0	98	104	57	429	2193	66	101	1055	0
Turn Type	Split			Split		Perm	Prot		Perm	Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	25.0	25.0		13.3	13.3	13.3	47.0	87.7	87.7	8.0	48.7	
Effective Green, g (s)	25.0	25.0		13.3	13.3	13.3	47.0	87.7	87.7	8.0	48.7	
Actuated g/C Ratio	0.17	0.17		0.09	0.09	0.09	0.31	0.58	0.58	0.05	0.32	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
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)	572	280		149	155	140	555	2069	926	94	1623	
v/s Ratio Prot	c0.17	0.14		0.06	0.06		0.24	c0.62		c0.06	0.21	
v/s Ratio Perm						0.08			0.05			
v/c Ratio	1.05	0.69		0.66	0.67	0.41	0.77	1.06	0.07	1.07	0.65	
Uniform Delay, d1	62.5	58.9		66.1	66.2	64.6	46.7	31.1	13.5	71.0	43.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	50.0	7.2		10.0	10.9	1.9	6.6	37.9	0.1	114.4	2.0	
Delay (s)	112.5	66.1		76.2	77.1	66.6	53.3	69.1	13.7	185.4	45.4	
Level of Service	F	E		E	E	E	D	E	B	F	D	
Approach Delay (s)		99.2			72.7			64.8			57.5	
Approach LOS		F			E			E			E	

Intersection Summary			
HCM Average Control Delay	69.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95					1.00	0.95	1.00		0.95	1.00
Frt	1.00	0.93					1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	3304					1770	3539	1583		3539	1583
Flt Permitted	0.95	1.00					0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770	3304					1770	3539	1583		3539	1583
Volume (vph)	446	261	208	0	0	0	224	1096	445	0	733	390
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)	485	284	226	0	0	0	243	1191	484	0	797	424
RTOR Reduction (vph)	0	111	0	0	0	0	0	0	148	0	0	234
Lane Group Flow (vph)	485	399	0	0	0	0	243	1191	336	0	797	190
Turn Type	Prot						Prot		Perm			Perm
Protected Phases	7	4					5	2			6	
Permitted Phases									2			6
Actuated Green, G (s)	44.6	44.6					37.0	97.4	97.4		56.4	56.4
Effective Green, g (s)	44.6	44.6					37.0	97.4	97.4		56.4	56.4
Actuated g/C Ratio	0.30	0.30					0.25	0.65	0.65		0.38	0.38
Clearance Time (s)	4.0	4.0					4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0					3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	526	982					437	2298	1028		1331	595
v/s Ratio Prot	c0.27	0.15					c0.14	0.34			0.23	
v/s Ratio Perm									0.31			0.27
v/c Ratio	0.92	0.41					0.56	0.52	0.33		0.60	0.32
Uniform Delay, d1	51.0	42.1					49.3	13.9	11.7		37.7	33.2
Progression Factor	1.00	1.00					0.95	0.83	0.36		0.34	0.13
Incremental Delay, d2	21.8	0.3					1.4	0.7	0.7		1.3	0.9
Delay (s)	72.8	42.4					48.2	12.2	4.9		14.2	5.4
Level of Service	E	D					D	B	A		B	A
Approach Delay (s)		57.2			0.0			15.0			11.1	
Approach LOS		E			A			B			B	

Intersection Summary			
HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.98	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1830	1583	1770		1583		3529		1770	3539	
Flt Permitted		0.98	1.00	0.43		1.00		1.00		0.12	1.00	
Satd. Flow (perm)		1830	1583	804		1583		3529		227	3539	
Volume (vph)	38	69	189	18	0	34	0	1531	29	131	690	0
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)	41	75	205	20	0	37	0	1664	32	142	750	0
RTOR Reduction (vph)	0	0	185	0	0	33	0	1	0	0	0	0
Lane Group Flow (vph)	0	116	20	20	0	4	0	1695	0	142	750	0
Turn Type	Perm		Perm	custom		custom				Perm		
Protected Phases		4						2			6	
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)		14.5	14.5	14.5		14.5		127.5		127.5	127.5	
Effective Green, g (s)		14.5	14.5	14.5		14.5		127.5		127.5	127.5	
Actuated g/C Ratio		0.10	0.10	0.10		0.10		0.85		0.85	0.85	
Clearance Time (s)		4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)		177	153	78		153		3000		193	3008	
v/s Ratio Prot								0.48			0.21	
v/s Ratio Perm		0.06	0.13	0.02		0.02				c0.63		
v/c Ratio		0.66	0.13	0.26		0.02		0.57		0.74	0.25	
Uniform Delay, d1		65.3	62.0	62.8		61.3		3.2		4.5	2.1	
Progression Factor		1.00	1.00	1.00		1.00		1.00		2.02	0.27	
Incremental Delay, d2		8.4	0.4	1.7		0.1		0.8		18.9	0.2	
Delay (s)		73.8	62.4	64.5		61.4		4.0		28.0	0.7	
Level of Service		E	E	E		E		A		C	A	
Approach Delay (s)		66.5			62.5			4.0			5.1	
Approach LOS		E			E			A			A	

Intersection Summary				
HCM Average Control Delay	12.2	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	72.9%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	50	682	53	113	329	92	62	9	116	66	14	21
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)	54	741	58	123	358	100	67	10	126	72	15	23
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	458			799			1512	1582	770	1508	1561	408
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	458			799			1512	1582	770	1508	1561	408
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 %	95			85			5	89	69	0	83	96
cM capacity (veh/h)	1103			824			71	88	401	53	91	644

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	54	799	123	458	77	126	110
Volume Left	54	0	123	0	67	0	72
Volume Right	0	58	0	100	0	126	23
cSH	1103	1700	824	1700	73	401	71
Volume to Capacity	0.05	0.47	0.15	0.27	1.06	0.31	1.55
Queue Length (ft)	4	0	13	0	142	33	233
Control Delay (s)	8.4	0.0	10.1	0.0	223.2	18.1	406.5
Lane LOS	A		B		F	C	F
Approach Delay (s)	0.5		2.1		95.9		406.5
Approach LOS					F		F

Intersection Summary				
Average Delay	37.7			
Intersection Capacity Utilization	67.7%	ICU Level of Service	C	
Analysis Period (min)	15			

Impact Analysis Report
Level Of Service

Intersection	Base Del/ LOS Veh	V/ C	Future Del/ LOS Veh	V/ C	Change in V/C
# 1	A xxxxx	0.486	A xxxxx	0.486	+ 0.000
# 2	A xxxxx	0.528	A xxxxx	0.528	+ 0.000
# 3	B xxxxx	0.619	B xxxxx	0.619	+ 0.000
# 4	C xxxxx	0.741	C xxxxx	0.741	+ 0.000
# 5	C xxxxx	0.725	C xxxxx	0.725	+ 0.000
# 6	A xxxxx	0.457	A xxxxx	0.457	+ 0.000
# 7	A xxxxx	0.552	A xxxxx	0.552	+ 0.000

Level Of Service Computation Report
CCTALOS Method (Base Volume Alternative)

Intersection #1

Cycle (sec): 100 Critical Vol./Cap.(X): 0.486
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 36 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Protected				Permitted				Permitted			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	1	0	0	0 1	1	0	0	0 0	0	1	0	0 1!	0	0
Volume Module:																
Base Vol:	16	633	0	0	1589	10	0	0	37	0	0	0				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	16	633	0	0	1589	10	0	0	37	0	0	0				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	16	633	0	0	1589	10	0	0	37	0	0	0				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	16	633	0	0	1589	10	0	0	37	0	0	0				
RTOR Reduct:	0	0	0	0	0	0	0	0	16	0	0	0				
RTOR Vol:	16	633	0	0	1589	10	0	0	21	0	0	0				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
FinalVolume:	16	633	0	0	1589	10	0	0	21	0	0	0				
Saturation Flow Module:																
Sat/Lane:	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720				
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Lanes:	1.00	2.00	0.00	0.00	1.99	0.01	0.00	0.00	1.00	0.00	1.00	0.00				
Final Sat.:	1720	3440	0	0	3418	22	0	0	1720	0	1720	0				
Capacity Analysis Module:																
Vol/Sat:	0.01	0.18	0.00	0.00	0.46	0.46	0.00	0.00	0.01	0.00	0.00	0.00				
Crit Volume:	16				800				21	0						
Crit Moves:	****				****				****							

Level Of Service Computation Report
CCTALOS Method (Base Volume Alternative)

Intersection #2

Cycle (sec): 100 Critical Vol./Cap.(X): 0.528
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 39 Level Of Service: A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Permitted				Permitted			
Rights:	Include				Ignore				Include				Ignore			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	1	0	2	0 1	1	0	2	0 1	0	0	1!	0 0	0	1	0	0 1
Volume Module:																
Base Vol:	0	710	13		8	1767	1		2	0		5	18	0		10
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Initial Bse:	0	710	13		8	1767	1		2	0		5	18	0		10
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
PHF Volume:	0	710	13		8	1767	1		2	0		5	18	0		10
Reduct Vol:	0	0	0		0	0	0		0	0		0	0	0		0
Reduced Vol:	0	710	13		8	1767	1		2	0		5	18	0		10
RTOR Reduct:	0	0	13		0	0	0		0	0		0	0	0		0
RTOR Vol:	0	710	0		8	1767	1		2	0		5	18	0		10
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
FinalVolume:	0	710	0		8	1767	1		2	0		5	18	0		10
Saturation Flow Module:																
Sat/Lane:	1720	1720	1720		1720	1720	1720		1720	1720		1720	1720	1720		1720
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Lanes:	1.00	2.00	1.00		1.00	2.00	1.00		0.29	0.00		0.71	1.00	0.00		1.00
Final Sat.:	1720	3440	1720		1720	3440	1720		491	0		1229	1720	0		1720
Capacity Analysis Module:																
Vol/Sat:	0.00	0.21	0.00		0.00	0.51	0.00		0.00	0.00		0.00	0.01	0.00		0.01
Crit Volume:	0					884						7	18			
Crit Moves:	****					****						****	****			

Level Of Service Computation Report
CCTALOS Method (Base Volume Alternative)

Intersection #3

Cycle (sec): 100 Critical Vol./Cap.(X): 0.619
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 60 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Protected				Protected			
Rights:	Include				Include				Ignore				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	1	0	2	0 0	0	0	2	0 1	1	0	0	0 1	0	0	0	0 0
Volume Module:																
Base Vol:	102	712	0		0	1878	11		24	0		242	0	0		0
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Initial Bse:	102	712	0		0	1878	11		24	0		242	0	0		0
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
PHF Volume:	102	712	0		0	1878	11		24	0		242	0	0		0
Reduct Vol:	0	0	0		0	0	0		0	0		0	0	0		0
Reduced Vol:	102	712	0		0	1878	11		24	0		242	0	0		0
RTOR Reduct:	0	0	0		0	0	11		0	0		0	0	0		0
RTOR Vol:	102	712	0		0	1878	0		24	0		242	0	0		0
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
FinalVolume:	102	712	0		0	1878	0		24	0		242	0	0		0
Saturation Flow Module:																
Sat/Lane:	1720	1720	1720		1720	1720	1720		1720	1720		1720	1720	1720		1720
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Lanes:	1.00	2.00	0.00		0.00	2.00	1.00		1.00	0.00		1.00	0.00	0.00		0.00
Final Sat.:	1720	3440	0		0	3440	1720		1720	0		1720	0	0		0
Capacity Analysis Module:																
Vol/Sat:	0.06	0.21	0.00		0.00	0.55	0.00		0.01	0.00		0.14	0.00	0.00		0.00
Crit Volume:	102					939			24					0		
Crit Moves:	****					****			****							

Level Of Service Computation Report
CCTALOS Method (Base Volume Alternative)

Intersection #4

Cycle (sec): 100 Critical Vol./Cap.(X): 0.741
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 72 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Permitted					Permitted				
Rights:	Include					Include					Ignore					Include				
Min. Green:	0	0	0			0	0	0			0	0	0			0	0	0		
Lanes:	1	0	2	0	1	1	0	2	0	1	0	1	0	0	1	0	0	1!	0	0
Volume Module:																				
Base Vol:	102	712		27		11	2176		22		28		3		148		25		3	29
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
Initial Bse:	102	712		27		11	2176		22		28		3		148		25		3	29
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
PHF Volume:	102	712		27		11	2176		22		28		3		148		25		3	29
Reduct Vol:	0	0		0		0	0		0		0		0		0		0		0	0
Reduced Vol:	102	712		27		11	2176		22		28		3		148		25		3	29
RTOR Reduct:	0	0		25		0	0		22		0		0		0		0		0	0
RTOR Vol:	102	712		2		11	2176		0		28		3		148		25		3	29
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
FinalVolume:	102	712		2		11	2176		0		28		3		148		25		3	29
Saturation Flow Module:																				
Sat/Lane:	1720	1720		1720		1720	1720		1720		1720		1720		1720		1720		1720	1720
Adjustment:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
Lanes:	1.00	2.00		1.00		1.00	2.00		1.00		0.90		0.10		1.00		0.44		0.05	0.51
Final Sat.:	1720	3440		1720		1720	3440		1720		1554		166		1720		754		91	875
Capacity Analysis Module:																				
Vol/Sat:	0.06	0.21		0.00		0.01	0.63		0.00		0.02		0.02		0.09		0.03		0.03	0.03
Crit Volume:	102						1088				28									57
Crit Moves:	****						****				****									****

Level Of Service Computation Report
CCTALOS Method (Base Volume Alternative)

Intersection #5

Cycle (sec): 100 Critical Vol./Cap.(X): 0.725
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 83 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Split Phase					Split Phase				
Rights:	Include					Include					Include					Include				
Min. Green:	0	0	0			0	0	0			0	0	0			0	0	0		
Lanes:	1	0	2	0	1	1	0	2	0	1	2	0	0	1	0	1	1	0	0	1
Volume Module:																				
Base Vol:	117	460		135		160	1643		793		115		67		44		186		80	35
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
Initial Bse:	117	460		135		160	1643		793		115		67		44		186		80	35
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
PHF Volume:	117	460		135		160	1643		793		115		67		44		186		80	35
Reduct Vol:	0	0		0		0	0		0		0		0		0		0		0	0
Reduced Vol:	117	460		135		160	1643		793		115		67		44		186		80	35
RTOR Reduct:	0	0		102		0	0		63		0		0		0		0		0	35
RTOR Vol:	117	460		33		160	1643		730		115		67		44		186		80	0
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
FinalVolume:	117	460		33		160	1643		730		115		67		44		186		80	0
Saturation Flow Module:																				
Sat/Lane:	1650	1650		1650		1650	1650		1650		1650		1650		1650		1650		1650	1650
Adjustment:	1.00	1.00		1.00		1.00	1.00		1.00		0.91		1.00		1.00		0.91		1.00	1.00
Lanes:	1.00	2.00		1.00		1.00	2.00		1.00		2.00		0.60		0.40		1.40		0.60	1.00
Final Sat.:	1650	3300		1650		1650	3300		1650		3000		996		654		2098		992	1650
Capacity Analysis Module:																				
Vol/Sat:	0.07	0.14		0.02		0.10	0.50		0.44		0.04		0.07		0.07		0.09		0.08	0.00
Crit Volume:	117						822								111		133			
Crit Moves:	****						****								****		****			

Level Of Service Computation Report
CCTALOS Method (Base Volume Alternative)

Intersection #6

Cycle (sec): 100 Critical Vol./Cap.(X): 0.457
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 42 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ignore			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 1	0	0 2	0 1	1	0 1	1 0	0	0 0	0 0
Volume Module:												
Base Vol:	242	825	429	0	603	605	243	234	65	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	242	825	429	0	603	605	243	234	65	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	242	825	429	0	603	605	243	234	65	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	242	825	429	0	603	605	243	234	65	0	0	0
RTOR Reduct:	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Vol:	242	825	429	0	603	605	243	234	65	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	242	825	429	0	603	605	243	234	65	0	0	0
Saturation Flow Module:												
Sat/Lane:	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	0.00	2.00	1.00	1.00	1.57	0.43	0.00	0.00	0.00
Final Sat.:	1720	3440	1720	0	3440	1720	1720	2692	748	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.14	0.24	0.25	0.00	0.18	0.35	0.14	0.09	0.09	0.00	0.00	0.00
Crit Volume:	242				302		243				0	
Crit Moves:	****				****		****					

Level Of Service Computation Report
CCTALOS Method (Base Volume Alternative)

Intersection #7

Cycle (sec): 100 Critical Vol./Cap.(X): 0.552
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 51 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0 1	1 0	1	0 2	0 0	0	1 0	0 1	1	0 0	0 1
Volume Module:												
Base Vol:	0	1220	22	87	549	0	17	35	143	13	0	147
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1220	22	87	549	0	17	35	143	13	0	147
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	1220	22	87	549	0	17	35	143	13	0	147
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1220	22	87	549	0	17	35	143	13	0	147
RTOR Reduct:	0	0	0	0	0	0	0	0	0	0	0	87
RTOR Vol:	0	1220	22	87	549	0	17	35	143	13	0	60
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	1220	22	87	549	0	17	35	143	13	0	60
Saturation Flow Module:												
Sat/Lane:	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.96	0.04	1.00	2.00	0.00	0.33	0.67	1.00	1.00	0.00	1.00
Final Sat.:	0	3242	58	1650	3300	0	539	1111	1650	1650	0	1650
Capacity Analysis Module:												
Vol/Sat:	0.00	0.38	0.38	0.05	0.17	0.00	0.03	0.03	0.09	0.01	0.00	0.04
Crit Volume:		621		87					143			60
Crit Moves:		****		****					****			****

Impact Analysis Report
Level Of Service

Intersection	Base Del/ LOS Veh	V/ C	Future Del/ LOS Veh	V/ C	Change in
# 1	B xxxxx	0.674	B xxxxx	0.674	+ 0.000 V/C
# 2	B xxxxx	0.664	B xxxxx	0.664	+ 0.000 V/C
# 3	B xxxxx	0.659	B xxxxx	0.659	+ 0.000 V/C
# 4	C xxxxx	0.738	C xxxxx	0.738	+ 0.000 V/C
# 5	E xxxxx	0.913	E xxxxx	0.913	+ 0.000 V/C
# 6	B xxxxx	0.603	B xxxxx	0.603	+ 0.000 V/C
# 7	B xxxxx	0.678	B xxxxx	0.678	+ 0.000 V/C

Level Of Service Computation Report
CCTALOS Method (Base Volume Alternative)

Intersection #1

Cycle (sec): 100 Critical Vol./Cap.(X): 0.674
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 57 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Protected				Permitted				Permitted			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	1	0 1	1	0	0	0 1	1	0	0	0 1!	0	0	0	0 1!	0	0
Volume Module:																
Base Vol:	19	2265	0		0	875	18		6	0	21		0	0	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	19	2265	0		0	875	18		6	0	21		0	0	0	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Volume:	19	2265	0		0	875	18		6	0	21		0	0	0	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	19	2265	0		0	875	18		6	0	21		0	0	0	
RTOR Reduct:	0	0	0		0	0	0		0	0	0		0	0	0	
RTOR Vol:	19	2265	0		0	875	18		6	0	21		0	0	0	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	19	2265	0		0	875	18		6	0	21		0	0	0	
Saturation Flow Module:																
Sat/Lane:	1720	1720	1720		1720	1720	1720		1720	1720	1720		1720	1720	1720	
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	1.00	2.00	0.00		0.00	1.96	0.04		0.22	0.00	0.78		0.00	1.00	0.00	
Final Sat.:	1720	3440	0		0	3371	69		382	0	1338		0	1720	0	
Capacity Analysis Module:																
Vol/Sat:	0.01	0.66	0.00		0.00	0.26	0.26		0.02	0.00	0.02		0.00	0.00	0.00	
Crit Volume:		1133			0						27		0			
Crit Moves:		****			****						****					

Level Of Service Computation Report
CCTALOS Method (Base Volume Alternative)

Intersection #2

Cycle (sec): 100 Critical Vol./Cap.(X): 0.664
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 55 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Permitted					Permitted				
Rights:	Include					Ignore					Include					Ignore				
Min. Green:	0	0	0			0	0	0			0	0	0			0	0	0		
Lanes:	1	0	2	0	1	1	0	2	0	1	0	0	1!	0	0	0	1	0	0	1
Volume Module:																				
Base Vol:	3	2213		23		12	853		4		8		0		3		13		0	17
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
Initial Bse:	3	2213		23		12	853		4		8		0		3		13		0	17
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
PHF Volume:	3	2213		23		12	853		4		8		0		3		13		0	17
Reduct Vol:	0	0		0		0	0		0		0		0		0		0		0	0
Reduced Vol:	3	2213		23		12	853		4		8		0		3		13		0	17
RTOR Reduct:	0	0		13		0	0		0		0		0		0		0		0	0
RTOR Vol:	3	2213		10		12	853		4		8		0		3		13		0	17
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
FinalVolume:	3	2213		10		12	853		4		8		0		3		13		0	17
Saturation Flow Module:																				
Sat/Lane:	1720	1720		1720		1720	1720		1720		1720		1720		1720		1720		1720	1720
Adjustment:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
Lanes:	1.00	2.00		1.00		1.00	2.00		1.00		0.73		0.00		0.27		1.00		0.00	1.00
Final Sat.:	1720	3440		1720		1720	3440		1720		1251		0		469		1720		0	1720
Capacity Analysis Module:																				
Vol/Sat:	0.00	0.64		0.01		0.01	0.25		0.00		0.01		0.00		0.01		0.01		0.00	0.01
Crit Volume:		1107				12									11		13			
Crit Moves:		****				****									****		****			

Level Of Service Computation Report
CCTALOS Method (Base Volume Alternative)

Intersection #3

Cycle (sec): 100 Critical Vol./Cap.(X): 0.659
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 67 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Protected					Protected				
Rights:	Include					Include					Ignore					Include				
Min. Green:	0	0	0			0	0	0			0	0	0			0	0	0		
Lanes:	1	0	2	0	0	0	0	2	0	1	1	0	0	0	1	0	0	0	0	0
Volume Module:																				
Base Vol:	197	2224		0		0	868		28		22		0		111		0		0	0
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
Initial Bse:	197	2224		0		0	868		28		22		0		111		0		0	0
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
PHF Volume:	197	2224		0		0	868		28		22		0		111		0		0	0
Reduct Vol:	0	0		0		0	0		0		0		0		0		0		0	0
Reduced Vol:	197	2224		0		0	868		28		22		0		111		0		0	0
RTOR Reduct:	0	0		0		0	0		22		0		0		0		0		0	0
RTOR Vol:	197	2224		0		0	868		6		22		0		111		0		0	0
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
FinalVolume:	197	2224		0		0	868		6		22		0		111		0		0	0
Saturation Flow Module:																				
Sat/Lane:	1720	1720		1720		1720	1720		1720		1720		1720		1720		1720		1720	1720
Adjustment:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00		1.00	1.00
Lanes:	1.00	2.00		0.00		0.00	2.00		1.00		1.00		0.00		1.00		0.00		0.00	0.00
Final Sat.:	1720	3440		0		0	3440		1720		1720		0		1720		0		0	0
Capacity Analysis Module:																				
Vol/Sat:	0.11	0.65		0.00		0.00	0.25		0.00		0.01		0.00		0.06		0.00		0.00	0.00
Crit Volume:		1112				0					22						0			
Crit Moves:		****				****					****									

Level Of Service Computation Report
CCTALOS Method (Base Volume Alternative)

Intersection #4

Cycle (sec): 100 Critical Vol./Cap.(X): 0.738
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 71 Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Permitted				Permitted			
Rights:	Include				Include				Ignore				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	2	0 1	1	0	2	0 1	0	1	0	0 1	0	0	1!	0 0
Volume Module:																
Base Vol:	133	2407	36	15	1020	26	21	2	94	24	0	6				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	133	2407	36	15	1020	26	21	2	94	24	0	6				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	133	2407	36	15	1020	26	21	2	94	24	0	6				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	133	2407	36	15	1020	26	21	2	94	24	0	6				
RTOR Reduct:	0	0	24	0	0	21	0	0	0	0	0	0				
RTOR Vol:	133	2407	12	15	1020	5	21	2	94	24	0	6				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
FinalVolume:	133	2407	12	15	1020	5	21	2	94	24	0	6				
Saturation Flow Module:																
Sat/Lane:	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720				
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	0.91	0.09	1.00	0.80	0.00	0.20				
Final Sat.:	1720	3440	1720	1720	3440	1720	1570	150	1720	1376	0	344				
Capacity Analysis Module:																
Vol/Sat:	0.08	0.70	0.01	0.01	0.30	0.00	0.01	0.01	0.05	0.02	0.00	0.02				
Crit Volume:		1204		15			21					30				
Crit Moves:		****		****			****					****				

Level Of Service Computation Report
CCTALOS Method (Base Volume Alternative)

Intersection #5

Cycle (sec): 100 Critical Vol./Cap.(X): 0.913
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 180 Level Of Service: E

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Protected				Protected				Split Phase				Split Phase			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0	2	0 1	1	0	2	0 1	2	0	0	1 0	1	1	0	0 1
Volume Module:																
Base Vol:	395	2018	78	93	869	110	550	75	145	114	72	121				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	395	2018	78	93	869	110	550	75	145	114	72	121				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	395	2018	78	93	869	110	550	75	145	114	72	121				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	395	2018	78	93	869	110	550	75	145	114	72	121				
RTOR Reduct:	0	0	63	0	0	110	0	0	0	0	0	93				
RTOR Vol:	395	2018	15	93	869	0	550	75	145	114	72	28				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
FinalVolume:	395	2018	15	93	869	0	550	75	145	114	72	28				
Saturation Flow Module:																
Sat/Lane:	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650				
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00				
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	0.34	0.66	1.23	0.77	1.00				
Final Sat.:	1650	3300	1650	1650	3300	1650	3000	563	1087	1839	1277	1650				
Capacity Analysis Module:																
Vol/Sat:	0.24	0.61	0.01	0.06	0.26	0.00	0.18	0.13	0.13	0.06	0.06	0.02				
Crit Volume:		1009		93			275			93						
Crit Moves:		****		****			****			****						

Level Of Service Computation Report
CCTALOS Method (Base Volume Alternative)

Intersection #6

Cycle (sec): 100 Critical Vol./Cap.(X): 0.603
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 57 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Protected					Protected				
Rights:	Include					Ignore					Include					Include				
Min. Green:	0	0	0			0	0	0			0	0	0			0	0	0		
Lanes:	1	0	2	0	1	0	0	2	0	1	1	0	1	1	0	0	0	0	0	0
Volume Module:																				
Base Vol:	224	1096	445		0	733	390		446	261	208		0	0	0					
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
Initial Bse:	224	1096	445		0	733	390		446	261	208		0	0	0					
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
PHF Volume:	224	1096	445		0	733	390		446	261	208		0	0	0					
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0					
Reduced Vol:	224	1096	445		0	733	390		446	261	208		0	0	0					
RTOR Reduct:	0	0	0		0	0	0		0	0	0		0	0	0					
RTOR Vol:	224	1096	445		0	733	390		446	261	208		0	0	0					
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
FinalVolume:	224	1096	445		0	733	390		446	261	208		0	0	0					
Saturation Flow Module:																				
Sat/Lane:	1720	1720	1720		1720	1720	1720		1720	1720	1720		1720	1720	1720					
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
Lanes:	1.00	2.00	1.00		0.00	2.00	1.00		1.00	1.11	0.89		0.00	0.00	0.00					
Final Sat.:	1720	3440	1720		0	3440	1720		1720	1914	1526		0	0	0					
Capacity Analysis Module:																				
Vol/Sat:	0.13	0.32	0.26		0.00	0.21	0.23		0.26	0.14	0.14		0.00	0.00	0.00					
Crit Volume:	224					367			446						0					
Crit Moves:	****					****			****											

Level Of Service Computation Report
CCTALOS Method (Base Volume Alternative)

Intersection #7

Cycle (sec): 100 Critical Vol./Cap.(X): 0.678
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 71 Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Split Phase					Split Phase				
Rights:	Include					Include					Include					Include				
Min. Green:	0	0	0			0	0	0			0	0	0			0	0	0		
Lanes:	0	0	1	1	0	1	0	2	0	0	0	1	0	0	1	1	0	0	0	1
Volume Module:																				
Base Vol:	0	1531	29		131	690	0		38	69	189		18	0	34					
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
Initial Bse:	0	1531	29		131	690	0		38	69	189		18	0	34					
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
PHF Volume:	0	1531	29		131	690	0		38	69	189		18	0	34					
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0					
Reduced Vol:	0	1531	29		131	690	0		38	69	189		18	0	34					
RTOR Reduct:	0	0	0		0	0	0		0	0	0		0	0	34					
RTOR Vol:	0	1531	29		131	690	0		38	69	189		18	0	0					
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
FinalVolume:	0	1531	29		131	690	0		38	69	189		18	0	0					
Saturation Flow Module:																				
Sat/Lane:	1650	1650	1650		1650	1650	1650		1650	1650	1650		1650	1650	1650					
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
Lanes:	0.00	1.96	0.04		1.00	2.00	0.00		0.36	0.64	1.00		1.00	0.00	1.00					
Final Sat.:	0	3239	61		1650	3300	0		586	1064	1650		1650	0	1650					
Capacity Analysis Module:																				
Vol/Sat:	0.00	0.47	0.47		0.08	0.21	0.00		0.06	0.06	0.11		0.01	0.00	0.00					
Crit Volume:			780		131						189		18							
Crit Moves:			****		****						****		****							