Appendix F:
Updated Traffic Study

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Traffic and Circulation Impact Analysis for the Proposed Terraces of Lafayette Project

For the City of Lafayette

December 17, 2018

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Introduction to the Updated Report

In 2012, TJKM conducted a traffic and circulation study for the proposed Terraces Project in Lafayette. The purpose of this report is to update that analysis to better reflect conditions in 2018. Although this report is directly based on the 2012 study, the following additions and methodology improvements/refinements were included in the update:

Revised Study Scenarios
The original study evaluated Existing (2012) and Cumulative (2030) conditions with and without the proposed Project. This report updates those scenarios with 2018 and 2035 conditions, respectively. 2012 traffic volumes were used as a baseline to project traffic conditions in 2018 and 2035, assuming a conservative annual growth of two percent per year. This methodology is described in more detail later in the report.

References
Several of the plans, reports, monitoring studies, and data sources referred to in the original report have since been updated or replaced. Where newer equivalent or better sources were identified, references and cited information have been updated accordingly.

Existing Parking, Pedestrian, Bicycle, and Transit Facilities
These sections were reviewed and compared to existing conditions in 2018. Descriptions were updated to reflect changes that have occurred since 2012. Data cited in the original study has also been updated.

Rebuilt Synchro Model
A new model of the roadway network in the study area was created using Synchro 10 software. In addition to using a newer version of this software, the model reflects current lane geometry and traffic controls. This includes a recent project by the City to coordinate the traffic signals along Pleasant Hill Road.

Updated Level of Service Methodology
Intersection level of service was calculated using Highway Capacity Manual 2010 (HCM 2010) methodology, as implemented in Synchro 10. The original report used HCM 2000 methodology and Synchro 7.

Simulation Analysis Using SimTraffic
The 2012 study evaluated driveway operations, segment speeds, and corridor operations on Pleasant Hill Road using a combination of SimTraffic and CORSIM simulations. All new simulation analysis was conducted using SimTraffic exclusively. SimTraffic is designed for analyzing complex corridors with interrupted flow, such as Pleasant Hill Road. SimTraffic utilizes the same Synchro traffic model used to calculate intersection level of service.

Alternative Analysis
The 2012 study included level of service, queuing, and corridor analyses for three Project alternatives, including one Project of reduced size and two Projects with different land uses. Analysis of these development alternatives has been omitted from this report.

Project Site Plan Refinements and Proposed Improvements
The 2012 study cited numerous significant impacts related to design features of the proposed site plan (dated September 21, 2011) and identified necessary design changes as mitigation measures.

Refinements to that site plan are incorporated in the updated site plan dated December 13, 2018, eliminating all design-related impacts. A complete list of these design changes is provided in the Introduction and discussed in detail later in the report. The Project size, parking supply, access points, and on-site circulation patterns remain substantially unchanged, with the following notable environmentally-beneficial exceptions:

- The locations of the two Project driveways on Deer Hill Road will be moved westward.
- At the eastern Project driveway on Deer Hill Road, the Project proposes to construct a westbound left turn lane for vehicles entering the site.
- The previously proposed median break on Pleasant Hill Road will be removed, altering access at the Pleasant Hill Road Project driveway to right-in/right-out only. Left turns into and out of the site from Pleasant Hill Road would be prohibited by a raised median. Project trips were reassigned accordingly.
- With the median break closed, the northbound left turn lane on Pleasant Hill Road at Deer Hill Road will be extended to Acalanes Avenue, to fully accommodate existing and Project-related left turning traffic.
- The Project proposes to add a third southbound through lane on Pleasant Hill Road, beginning just north of Deer Hill Road – Stanley Blvd, which would act as a trap lane for the SR 24 westbound on-ramp.

Consistency with 2012 FEIR

The certified 2013 Final Environmental Impact Report removed or revised the wording on certain impacts identified in the original traffic study. These revisions included reevaluating which impacts were considered significant and whether identified mitigation measures were considered feasible. This report reflects these FEIR changes in the detailed list of traffic impacts.

This update includes the following environmentally-beneficial changes in results:

- At the intersection of Pleasant Hill Road & Deer Hill Road/Stanley Boulevard, the Project includes geometry changes that would eliminate the significant impacts identified in the 2012 study. No mitigation is required.
- Simulation results indicate that proposed alterations to Pleasant Hill Road between Deer Hill Road and SR-24 would increase speeds under certain scenarios and would not develop northbound congestion to the degree reported previously. The 2012 study indicated that all changes would reduce speeds, indicating unacceptable weaving conditions.

In addition, it should be noted that the following sections remain substantially unchanged:

Trip Generation, Distribution and Assignment

The original study used trip generation rates from the Institute of Transportation Engineers' publication Trip Generation, 8th Edition (2008). The trip generation estimates established in the original study were approved by the City of Lafayette. As part of the update, these trip generation rates were compared to those published in Trip Generation, 10th Edition (2017), which are based on newer data and changes in how residential land uses are distinguished. The newer, more accurate peak hour trip generation rates that would apply to the proposed Project are lower than those used originally. Therefore, the trip generation used in 2012 produces a more conservative, but less accurate, analysis. Trip distribution and assignment were left unchanged as a result.

Field Observations
The original study included extensive field observations of parking, loading, and traffic conditions. Descriptions of parking and passenger loading facilities were compared to recent aerial photographs in order to identify any facilities changes that may have resulted in operational changes. Qualitative descriptions were generally unchanged and have been identified as reporting 2012 conditions where appropriate.

Routes of Regional Significance
The Delay Index projections on Pleasant Hill Road and State Route 24 reported in the 2012 study were compared to those found in the updated 2017 Lamorinda Action Plan. The Year 2030 analysis results from the 2012 study are substantially more conservative than the 2040 baseline projections found in the 2017 Plan. As the original analysis can be considered overly conservative, only a brief comparison to more recent projections has been added.

Introduction and Summary

Introduction

This report presents the results of a transportation impact analysis for the proposed Terraces of Lafayette multi-family residential development in the city of Lafayette. The proposed Project consists of constructing a 315-unit apartment complex in new buildings on the site, which is bounded by Deer Hill Road on the northwest, Pleasant Hill Road on the east, and SR 24 on the south. The proposed Project vicinity is illustrated in Figure 1. Figure 2 shows the updated proposed site plan, dated December 13, 2018. The previous site plan was initially developed in 2011 and formed the basis of the traffic and circulation impact analysis completed by TJKM in 2012.

This report includes a traffic analysis of study intersections that would potentially be affected by the proposed Project, identification of any significant impacts on unacceptable traffic levels of service (LOS), and evaluation of potential mitigation measures to address those unacceptable traffic conditions. The report also analyzes the potential impacts of the proposed Project on traffic safety, transit, pedestrian, and bicycle facilities, parking and passenger loading areas, emergency vehicle access, and Delay Indexes on Routes of Regional Significance, as well as traffic impacts during construction of the Project.

Summary

TJKM has identified the following significant impacts and mitigations, which are numbered in the summary below to match their presentation in the Final EIR for the Terraces of Lafayette Project.

Impact TRAF-1: Under Existing plus Project conditions, northbound and southbound stop-controlled minor approaches on Brown Avenue at Deer Hill Road would continue operating at an unacceptable LOS F during the a.m. and p.m. peak hours, with delay increases substantially higher than five seconds. The California Manual on Uniform Traffic Control Devices (MUTCD) peak hour traffic signal warrant would be met for both peak hours under both the Existing Conditions and Existing plus Project scenarios. The Project would increase delay by more than five seconds at an intersection operating below the acceptable standard, and result in inadequate emergency access to Deer Hill Road, resulting in *significant* impacts.

> Mitigation Measure TRAF-1: The Project applicant shall coordinate with the City to contribute a fair share of the cost, including an in-lieu payment, to install a traffic signal at the Brown Avenue/Deer Hill Road intersection, which will be added to the City's Capital Improvement Projects (CIP) program. The traffic signal equipment shall include an emergency vehicle preemption system (Opticom), which would allow emergency response vehicles approaching the signalized intersection to activate a green signal for their travel direction. The State Route 24 freeway overpass structures on Brown Avenue could obstruct the Opticom activation device on responding emergency vehicles headed northbound on Brown Avenue from Mount Diablo Boulevard toward Deer Hill Road, which could substantially reduce the effectiveness of the traffic signal preemption. To avoid this problem, the traffic signal equipment shall include advance detection devices for the Opticom system as needed to assure effective traffic signal preemption for responding emergency vehicles on northbound Brown Avenue. An Alternative mitigation option to installing a traffic signal would be the redesign of this intersection as a roundabout. A roundabout would improve the approach LOS for the minor approach volumes at this intersection relative to Existing Conditions, although it would improve LOS to a smaller degree than signalization.

Significance after Mitigation: Less than significant. As shown in Table VI:

- With signalization, the Brown Avenue/Deer Hill Road intersection would operate at LOS A during the a.m. and p.m. peak hours under Existing plus Project conditions, and the advance detection devices for traffic signal preemption would provide adequate emergency access.
- With a roundabout, the Deer Hill Road/Brown Avenue intersection would operate at LOS C during the AM peak hour and LOS D during the PM peak hour, and would adequately accommodate emergency response vehicles.

Either mitigation alternative would reduce the impact to a less-than-significant level.

Impact TRAF-2: Under both Existing plus Project and Cumulative Year 2035 plus Project conditions, the Project's substantial reduction of p.m. peak-hour traffic speeds for northbound Pleasant Hill Road between the off-ramp from westbound State Route 24 and Deer Hill Road/Stanley Boulevard would result in inadequate emergency access to other areas of Lafayette served by Pleasant Hill Road between State Route 24 and Rancho View Drive. The result would be a *significant* impact.

Mitigation Measure TRAF-2: The Project applicant shall install advance detection equipment for the existing Opticom system as needed to assure effective traffic signal preemption for responding emergency vehicles on northbound Pleasant Hill Road approaching the Deer Hill Road intersection and the other four signalized study intersections to the north. The advance detection system shall be designed to activate a green signal for northbound Pleasant Hill Road at Deer Hill Road with enough time before the emergency vehicle arrives to allow traffic congestion between State Route 24 and the intersection to clear sufficiently to facilitate passage of the emergency vehicle. At a minimum, the advance detection system shall allow emergency vehicles responding from CCCFPD Station 15 (located at 3338 Mount Diablo Boulevard) to activate traffic signal preemption for northbound Pleasant Hill Road at Deer Hill Road as soon as they turn north from eastbound Mount Diablo Boulevard.

Significance after Mitigation: Less than Significant

Impact TRAF-3: During the grading phase of construction on the Project site, large truck traffic on Pleasant Hill Road and Deer Hill Road and elimination of the existing passenger loading zone along the Project frontage on Pleasant Hill Road would result in a temporary *significant* impact.

Mitigation Measure TRAF-3: The Project applicant shall prepare and submit a Construction Staging Plan for review and approval by the City Engineer. The Construction Staging Plan shall include elements such as flaggers for trucks entering and exiting the site, and a designated liaison to coordinate with the City, schools, and the public as needed, and shall implement the following required measures:

- Large trucks involved in the grading phase of construction shall be prohibited from arriving at or departing from the Project site during the hours of 7:00 to 9:00 a.m. and 3:00 to 7:00 p.m. on any school day, and 7:00 to 9:00 a.m. and 4:00 to 7:00 p.m. on any non-school weekday.
- Large trucks shall be prohibited from making U-turn movements from northbound to southbound Pleasant Hill Road at the Deer Hill Road intersection during construction. The Construction Staging Plan shall specify for each construction phase whether access to the Project site from northbound Pleasant Hill Road will be allowed by providing a median

opening for left turns directly into the site south of Deer Hill Road, or will require a left turn onto Deer Hill Road and a subsequent left turn into the site,

- If the Construction Staging Plan allows large trucks to turn left from northbound Pleasant Hill Road to Deer Hill Road, accommodation of their turning radius may require the following temporary measures: modifications to the south median within up to 15 feet from the nose; relocation of the limit line for eastbound Deer Hill Road traffic lanes by up to 15 feet behind the existing crosswalk marking; adjustments to vehicle detectors, any other affected traffic signal equipment, and traffic signal timing as required to maintain safe and effective operations; and, measures as otherwise specified by the City Engineer.
- The proposed locations and configuration of access points on Pleasant Hill Road and Deer Hill Road where large trucks would turn into or out of the Project site during construction shall be subject to approval by the City Engineer, to ensure consideration of sight-distance constraints and implementation of appropriate safety precautions.
- During any construction phase when access to the existing passenger loading zone on the west curb of Pleasant Hill Road along the Project frontage would be unavailable on school days, one of the following measures:
    - Provide a safe, temporary alternative loading zone in the immediate area, subject to approval by the City Engineer. Potential alternatives may include temporary use of the property on the northwest corner of Pleasant Hill Road and Deer Hill Road, which would require surface improvements to facilitate safe vehicle and pedestrian access.
    - Stage construction on the subject portion of the site such that during the school break for summer, the existing passenger loading zone would be demolished and replaced by construction of the recommended roadway configuration and passenger loading zone on the Pleasant Hill Road Project frontage.
- The Construction Staging Plan shall require restriping of bike lanes and other pavement markings at the discretion of the City Engineer to address wear from construction traffic.
- Special school events, such as swim meets, shall be addressed by the designated liaison required in the Construction Staging Plan, or any additional measures that the City Engineer may require in that Plan.

Significance after Mitigation: Less than Significant

Impact TRAF-4: Under the Cumulative Year 2035 plus Project scenario, the Brown Avenue/Deer Hill Road intersection would continue to operate at an unacceptable LOS F during the a.m. and p.m. peak hours, with delay increases substantially higher than five seconds. This would be a *significant* cumulative impact.

Mitigation Measure TRAF-4: Implement Mitigation Measure TRAF-1.

Significance after Mitigation: Less than significant. As shown in Table XV:

- With signalization, the Brown Avenue/Deer Hill Road intersection would operate at LOS C during both peak hours, and the advance detection devices for traffic signal preemption would provide adequate emergency access.
- With a roundabout, the Deer Hill Road/Brown Avenue intersection would operate at LOS F during the AM peak hour and LOS F during the PM peak hour, with a substantial

improvement in average delay over Existing Conditions. A roundabout would adequately accommodate emergency response vehicles.

Either mitigation alternative would reduce the impact to a less-than-significant level.

Impact TRAF-5: Under the Cumulative Year 2035 plus Project scenario, Project traffic exiting the west Project driveway on Deer Hill Road would experience an LOS F delay during the a.m. peak hour. This amount of delay suggests that drivers turning left out of the driveway would have some difficulty finding an acceptable gap in traffic flow on Deer Hill Road, at a location where prevailing speeds are relatively high. This would pose a traffic hazard, resulting in a *significant* cumulative impact.

Mitigation Measure TRAF-5: Widen Deer Hill Road at the west Project driveway as needed to add a striped westbound median refuge lane to receive left turns from the driveway, provide appropriate taper lengths west of the refuge lane, and maintain appropriate widths for bike lanes, traffic lanes, and proposed sidewalks.

Significance after Mitigation: Less than Significant

Impact TRAF-6: The Project would generate an additional weekday parking demand for up to 50 spaces at the Lafayette BART station, which represents approximately three percent of the 1,529 spaces in the lot. Because the parking lot demand already exceeds capacity on weekdays, this would be a *significant* impact.

Mitigation Measure TRAF-6: The Project applicant shall provide subsidized, frequent shuttle service between the Project site and the Lafayette BART station during the a.m. and p.m. peak commute periods, until such time that a bus route on Pleasant Hill Road serving the BART station is implemented (as called for in the Lamorinda Action Plan), at which point the Project applicant may provide transit vouchers in lieu of a shuttle.

Significance after Mitigation: Less than Significant

TJKM reviewed the Project site plan dated December 13, 2018 (Figure 2) with regard to on-site circulation, including pedestrians. Figure 2 incorporates numerous refinements to the site plan initially submitted in 2012 (dated September 21, 2011), which address design features that could otherwise generate impacts. An annotated copy of the 2011 site plan, showing all environmentally beneficial refinements, has been included in Appendix H.

For purposes of the following descriptions, the term "upper loop" refers to the on-site driveway closest to Deer Hill Road that serves buildings A, B, C, and D, and connects the west Project driveway on Deer Hill Road to the Pleasant Hill Road driveway. The "lower loop" refers to the on-site driveway closer to the southerly property boundary that serves buildings E through L and the Clubhouse, terminating at the east Project driveway on Deer Hill Road.

Environmentally-beneficial refinements analyzed in this study include all of the following measures:

a) To maintain adequate sight-distance, all landscaping within 15 feet of on-site driveway intersections shall be limited to plants with foliage no more than 30 inches fully mature height above the closest adjacent curb elevation, or trees with canopy foliage no less than seven feet above the closest adjacent curb elevation, or other dimensions as specified by the City

Engineer. Ensure that landscaping and signage, monuments, etc., do not obstruct sight lines at driveways and along the Project frontage.

b) At the on-site four-way intersection of the upper loop and lower loop driveways, which connect to Pleasant Hill Road and the east driveway on Deer Hill Road respectively, install two-way stop sign control on one of the two driveways.

c) Revise the site plan to include construction of pedestrian facilities, which may include stairs and walkways on alignments as needed, to provide more direct pedestrian connections for the following routes:

- Between Deer Hill Road and Building A, along the west Project driveway
- Between Building D and Pleasant Hill Road near Building M, along the upper loop driveway
- Between Building G and Deer Hill Road, along the lower loop driveway
- Between Building L and the Leasing Office, along the lower loop driveway
- Between Building M and the recommended facility along the upper loop driveway
- Between Building N and the upper loop driveway, with crosswalks to connect with the recommended Building M connection

d) Relocate the west driveway on Deer Hill Road at least 100 feet to the west of the location shown on the Project plans, and add signage and a raised island prohibiting left turns into the driveway from westbound Deer Hill Road.

e) Position the east driveway on Deer Hill Road to allow at least 250 feet of left turn storage for westbound vehicles.

f) At Project driveways, include special design treatments, such as paving to be specified by the City Engineer, to alert drivers exiting the Project site that they are crossing pedestrian and bicycle facilities.

g) Revise the Project site plans such that corner radii and medians at on-site driveway intersections provide a minimum inside turning radius of 25 feet and a minimum outside turning radius of 45 feet, per CCCFPD requirements. Project driveways and internal intersections should provide adequate width and turning radii to allow adequate truck access.

h) Further review parking stall depth and vehicle overhang.

i) Ensure that all sidewalks satisfy City guidelines of for minimum width and buffer strips.

j) School bus stops should be added to the Project frontage on southbound Pleasant Hill Road, with the design and location determined in consultation with the Lamorinda School Bus Program

With respect to the Project frontage along southbound Pleasant Hill Road, the proposed widening of Pleasant Hill Road shall include the following:

k) Construction of a new Class I shared path for bicycles and pedestrians, consistent with City plans to construct a bike path in this location. The pavement width and buffer area should be adequate to permit pedestrians to access loading spaces, and the intersection with the Project driveway should include adequate sight distance and appropriate surface treatments to prevent hazards to pedestrians and bicyclists. The Project application should work with the City to develop an appropriate alignment.

l) On-street bike lanes should be located to the left of dedicated right turn lanes. This would also apply to the proposed trap lane for the southbound SR-24 on-ramp.

m) The dedication of right of way for widening should include adequate width to relocate the passenger loading spaces that would otherwise be eliminated.

The Project would also include the following environmentally beneficial refinements to the 2011 site plan:

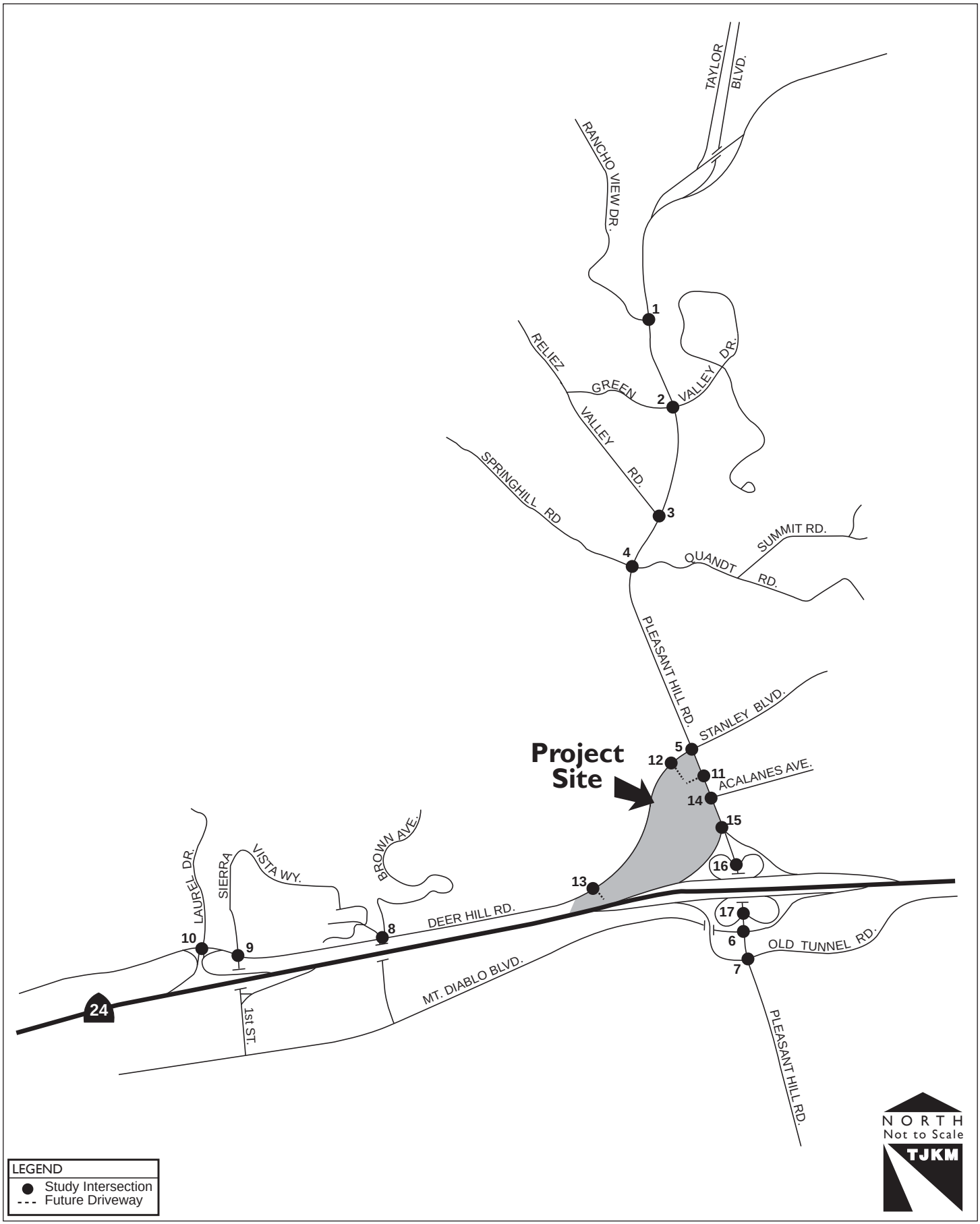
n) Remove the previously proposed median break on Pleasant Hill Road opposite the Project driveway to prevent northbound left turns into the project site. Extend the existing northbound left turn lane to Acalanes Avenue, to accommodate existing and Project-related traffic.

o) Widen Pleasant Hill Road to add a third lane for southbound through traffic between Deer Hill Road and SR 24. The lane would start approximately 150 feet north of Deer Hill Road and extend south along the entire Project frontage on Pleasant Hill Road to become a right-turn-only lane for the on-ramp to westbound SR 24 (i.e., a "trap" lane).

City of Lafayette - The Terraces of Lafayette EIR

Figure 1

Vicinity Map



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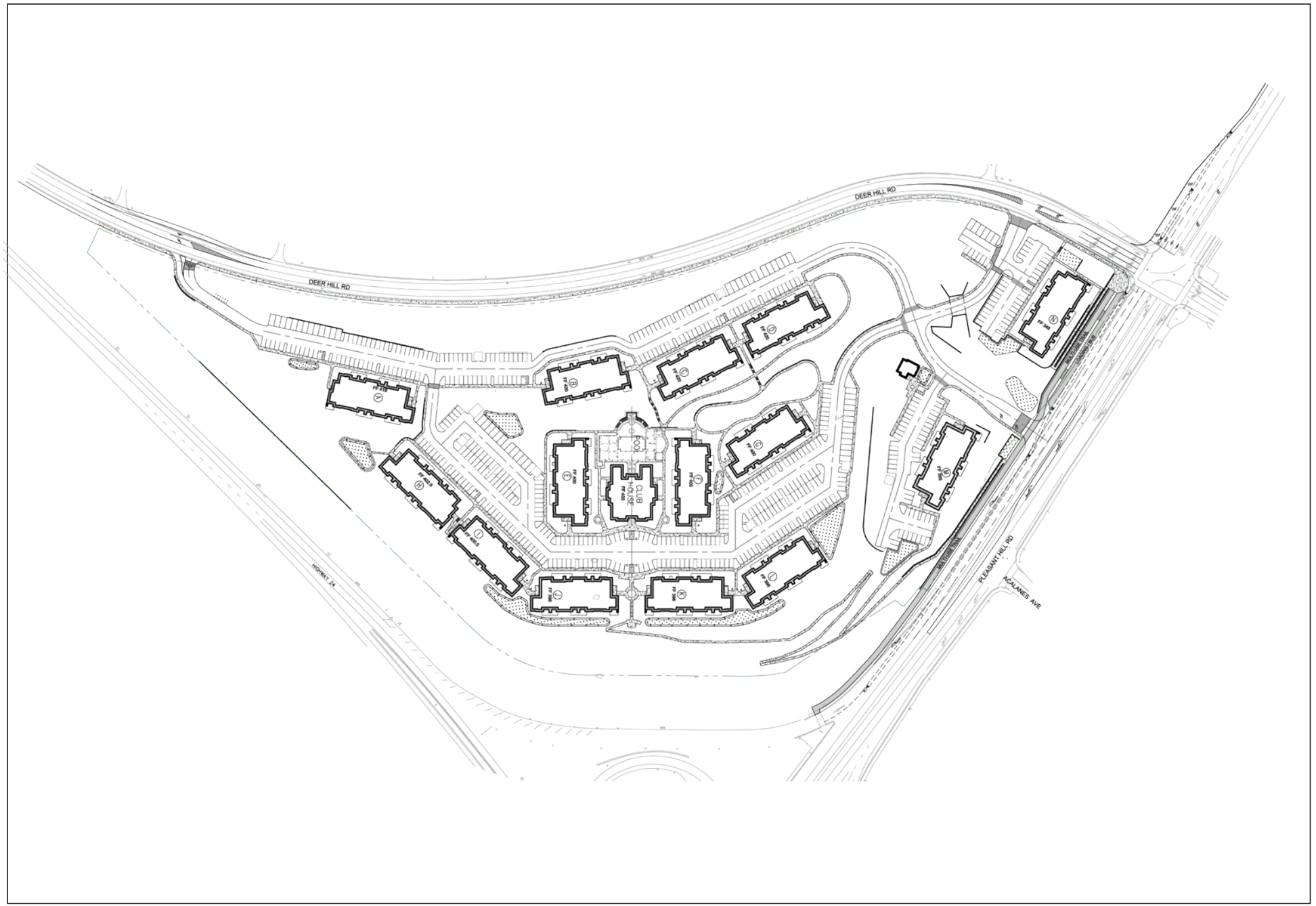


Source: LCA Architects

Traffic Operations Analysis Methodology

Study Scenarios

The following traffic scenarios were addressed in this study:

- *Existing Conditions* – This scenario evaluates existing (2018) traffic volumes and roadway conditions based on projected peak hour turning movement counts and field surveys. Peak hour turning movement volumes are projected from 2011 conditions, increased by a conservative annual growth rate of two percent per year. This growth factor was based on more recent 2016 counts performed at five of the Project intersections, and compared to the most recent CCTA model and CCTA Central County Action Plan for 2014. The CCTA model includes future land use and transportation network assumptions for the entire county, including Lafayette, Pleasant Hill, Martinez, Walnut Creek, Moraga, and unincorporated areas. The CCTA model assumes no development of the Project site.
- *Existing plus Project Conditions* – This scenario is identical to Existing Conditions, but with the addition of traffic expected to be generated by the proposed Project and the connection of Project driveways to the adjacent roadways.
- *Cumulative Year 2035 No Project Conditions* – This scenario is based on projecting 2011 Conditions traffic volumes into the future using the same two percent annual growth factor described above.
- *Cumulative Year 2035 plus Project Conditions* – This scenario is identical to Cumulative Year 2035 No Project Conditions, but with the addition of traffic expected to be generated by the proposed Project and the connection of Project driveways to the adjacent roadways.

Intersection Analysis Methodology

Study Intersections

The analysis evaluated traffic conditions at study intersections that the proposed Project may potentially affect by adding a considerable number of peak hour trips. The following study intersections were analyzed:

1. Pleasant Hill Road / Rancho View Drive (Signalized)
2. Pleasant Hill Road / Green Valley Drive (Signalized)
3. Pleasant Hill Road / Reliez Valley Road (Signalized)
4. Pleasant Hill Road / Springhill Road – Quandt Road (Signalized)
5. Pleasant Hill Road / Deer Hill Road – Stanley Blvd. (Signalized)
6. Pleasant Hill Road / Mt. Diablo Blvd. / SR 24 Eastbound On-ramp (Signalized)
7. Pleasant Hill Road / SR 24 Eastbound Off-ramp – Old Tunnel Rd. (Signalized)
8. Deer Hill Road / Brown Avenue (Unsignalized)
9. Deer Hill Road / First Street – Sierra Vista Way (Signalized)
10. Deer Hill Road / SR 24 Westbound Ramps – Laurel Dr. (Signalized)
11. Pleasant Hill Road / Project Driveway (Proposed – Unsignalized)
12. Deer Hill Road / Project Driveway East (Proposed – Unsignalized)
13. Deer Hill Road / Project Driveway West (Proposed – Unsignalized)

All of the study intersections are outside of the Downtown area as defined in the Lafayette General Plan Circulation Chapter (p. II-5).

Level of Service Analysis Methodology

Level of service (LOS) is a qualitative description of intersection operations and is reported using an A through F letter rating system to describe travel delay and congestion. LOS A indicates free flow conditions with little or no delay, and LOS F indicates jammed conditions with excessive delays and long back-ups. The LOS methodology is detailed in Appendix A. In most cases, the level of service analysis is performed using intersection turning movement volumes during each of the a.m. and p.m. commute peak hours; the analysis presented herein also includes the mid-afternoon peak hour that occurs around school dismissal.

Operating conditions at the study intersections were evaluated using the 2010 Transportation Research Board Highway Capacity Manual (HCM 2010) Operations methodology. Peak hour traffic operational conditions for signalized intersections are reported as average control delay for the overall intersection in seconds per vehicle with corresponding levels of service. In addition to the control delay and level of service relationships shown in Appendix A, the City of Lafayette has the following definitions for signalized intersections as shown in Table I:

- "Good" LOS D is defined as 35 to 45 seconds of average control delay per vehicle.
- "Poor" LOS D is defined as 45 to 55 seconds of average control delay per vehicle.

Table I: Signalized Intersection Level of Service Criteria

LOS	***Description***	***Average Control Delay (Seconds)***
A	Free flow/non-congested operation. Turning movements are easily made and all queues clear in a single signal cycle.	≤ 10.0
B	Stable operation/minimal delays. An occasional approach phase is fully utilized. Drivers begin to feel somewhat restricted within platoons of vehicles.	> 10.0 to 20.0
C	Stable operation/acceptable delays. Major approach phases fully utilized. Backups may develop behind turning vehicles.	> 20.0 to 35.0
D	Approaching unstable operation/tolerable delays. Drivers may have to wait through more than one red signal indication. Queues may develop but dissipate rapidly, without excessive delays.	"Good" D: > 35.0 to 45.0 "Poor" D: > 45.0 to 55.0
E	Unstable operation/significant delays. Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream of intersection.	> 55.0 to 80.0
F	Forced flow/excessive delays. Represents jammed conditions. Traffic demand exceeds the capacity. Queues may block upstream intersection.	> 80.0

Source: Transportation Research Board, 2010, *Highway Capacity Manual*; 2002 City of Lafayette General Plan.

For unsignalized intersections, average control delay is reported for the critical minor stop-controlled approach, with corresponding levels of service as shown in Appendix A.

Although not used to determine CEQA impacts at intersections, level of service calculations using the Contra Costa Transportation Authority (CCTA) adopted methodology for evaluating signalized intersections were also performed in order to analyze impacts against locally-adopted transportation criteria. The CCTA LOS methodology is detailed in Appendix A.

Pleasant Hill Road Corridor Traffic Simulation

The HCM 2010 LOS analysis was performed using Synchro traffic analysis software. To provide supplemental data regarding peak-hour vehicle queues, travel times and traffic delays on the Pleasant Hill Road corridor between the Rancho View Drive and SR 24 eastbound off- ramp/Old Tunnel Road intersections, the SimTraffic traffic simulation module of the Synchro software was utilized.

The SimTraffic model was developed to run simulations for the a.m. peak hour, school dismissal p.m. peak hour, and commute p.m. peak hour. The elements incorporated into the simulation model include:

- Street geometry, lane configurations and usage, allowed turning movements, and parking restrictions
- Traffic signal timing plans
- Vehicular and pedestrian volumes at intersections based on data collection
- Field observations of driver behavior and lane change parameters

Validation and calibration of the Existing conditions SimTraffic model included the following steps:

- The Existing conditions model was calibrated by adjusting certain calibration parameters provided in SimTraffic to fine-tune the model and reasonably replicate observed/measured field conditions such us travel time, delay, queues, and saturation flow rates.
- Video recording of Existing traffic conditions for both the northbound and southbound directions on Pleasant Hill Road was performed for all three analysis periods. These recordings served as an additional tool for calibrating and validating the existing model.
- TJKM calibrated the SimTraffic model to match the observed travel times within a reasonable tolerance range.

The calibrated Existing conditions model was used to develop simulations of the following scenarios:

- Existing with Project conditions (a.m. peak hour, school dismissal p.m. peak hour, and commute p.m. peak hour)
- Cumulative with Project conditions (a.m. peak hour and commute p.m. peak hour)
- Peak-hour travel times and critical queue lengths within this Pleasant Hill Road corridor, including long queues backing up through upstream intersections, were estimated for these three scenarios based on the results of the analyses described above.

Peak Hour Traffic Signal Warrant Criteria

TJKM conducted a signal warrant analysis for study intersections in which traffic signal installation is considered as a mitigation option under Existing plus Project Conditions and Cumulative 2035 plus Project Conditions. The 2010 California Manual on Uniform Traffic Control Devices (CA-MUTCD) was used to determine whether unsignalized study intersections operating at an unacceptable LOS meet the criteria for installation of a traffic signal. Installation should be considered if one or more of the warrant criteria described in the CA-MUTCD is met.

As part of this study, unsignalized study intersections operating at LOS F were evaluated using the 2010 CA-MUTCD peak hour warrant (Warrant 3). The peak hour signal warrant is intended for intersections where for a minimum of one hour of an average day, the minor-street traffic

experiences undue delay when entering and crossing the major street. Entering peak hour intersection traffic volumes for a given analysis scenario are used as the basis for this evaluation.

Routes of Regional Significance Delay Index Methodology
The Contra Costa Transportation Authority (CCTA) serves as the Congestion Management Agency (CMA) for Contra Costa County. State Route 24 and Pleasant Hill Road north of State Route 24 are designated by CCTA as Routes of Regional Significance.

The Final Lamorinda Action Plan Update (DKS Associates, September 2017) and the 2017 Countywide Comprehensive Transportation Plan (adopted September 20, 2017) establish Multimodal Traffic Service Objectives (MTSOs) for CCTA-designated routes of Regional Significance in Lamorinda. An MTSO used to measure freeway and arterial operations is the peak hour peak direction Delay Index, which is defined as the ratio of peak period peak direction travel time to off-peak period travel time on each roadway segment. For example, a Delay Index of 2.0 means that it takes twice as long to travel a particular segment during the peak commute hour than during non-commute hours when traffic moves at free-flow speeds.

Delay Indexes for Cumulative 2030 conditions were calculated on State Route 24 between St. Stephens Drive and Interstate 680 for westbound traffic during the a.m. peak hour and eastbound traffic during the p.m. peak hour. For Pleasant Hill Road between State Route 24 and Taylor Boulevard, Delay Indexes for Cumulative 2030 conditions were calculated for the southbound direction during the a.m. peak hour and northbound during the p.m. peak hour.

Pleasant Hill Road Weaving Traffic for Project Driveway Access
TJKM analyzed weaving traffic conditions on Pleasant Hill Road between the free-flow freeway ramp junctions at SR 24 and the proposed Project driveway on Pleasant Hill Road using SimTraffic software. Weaving conditions involve traffic entering one side (right or left) of a roadway that must cut across traffic lanes to make a turn or exit on the opposite side of the roadway within a short distance. The standard Highway Capacity Manual methodology for weaving analysis, which is typically used for freeways, is not directly applicable to Pleasant Hill Road because of the lower prevailing speeds and the presence of traffic signals immediately upstream and downstream of the weaving section.

TJKM studied weaving conditions at the following locations:

- Northbound Pleasant Hill Road between Acalanes Drive and Deer Hill Road/Stanley Boulevard, caused by vehicles making left and U-turns to access the Project driveways
- Southbound Pleasant Hill Road between the Project driveway and the westbound SR 24 on-ramp, caused by vehicles making right turns out of the Project driveway

The key traffic performance measure provided by the SimTraffic simulation output is the average speed on the critical weaving segment. TJKM compared the average speed results for the weaving segments with and without the Project to determine whether a significant reduction in speed would occur, which would indicate that the weaving traffic movements cause potentially hazardous vehicle conflicts.

Significant Impact Criteria

The Project is considered to have a significant impact on traffic conditions if it would:

1. Cause a signalized "downtown" intersection (as identified in General Plan) operations to deteriorate from LOS A, B, C, or D to LOS E or F.
2. Cause operations at a signalized intersection "outside downtown" to deteriorate from LOS A, B, C, or "good" D to "poor" LOS D or to LOS E or F. "Good" LOS D is defined as 35 to 45 seconds of average control delay per vehicle. "Poor" LOS D is defined as 45 to 55 seconds of average delay.
3. Cause the overall level of service at an unsignalized all-way stop control intersection to degrade from LOS D or better to LOS E or F.
4. Cause the level of service at an unsignalized one- or two-way stop control intersection to degrade from LOS E or better for the worst movement from the side street to LOS F, where the intersection also meets at least one warrant for the installation of a traffic signal.
5. Cause a Delay Index to increase from 2.5 or less to exceed 2.5 for the peak hour peak direction on State Route 24 (after 2030).
6. Cause a Delay Index to increase from 2.0 or less to exceed 2.0 for the peak hour peak direction on Pleasant Hill Road.
7. Cause delay to increase by five or more seconds at an intersection, or the Delay Index to increase by 0.05 or more for a roadway, where subject intersection or roadway is operating below the acceptable standard that is applicable, as outlined above.
8. Substantially increase hazards due to a design feature (e.g. sharp curves; intersections or driveways with restricted visibility, or causing unacceptable weaving conditions by exceeding the following speed reduction thresholds.
    - 1 mile per hour (mph) within speed Range Zone I (0-5.0 mph)
    - 1.5 mph within Speed Range Zone II (5.1 – 10.0 mph)
    - 2.0 mph within Speed Range Zone III (10.1 – 15.0 mph)
    - 2.5 mph within Speed Range Zone IV (15.1 – 20.0 mph)
    - 3.0 mph within Speed Range Zone V (20.1 – 25.0 mph)
    - 4.0 mph within Speed Range Zone VI (25.1 – 30.0 mph)
9. Generate added transit ridership that would increase the peak hour average ridership at a BART station by three (3) percent where average waiting time at fare gates also either:
    - Already exceeds one minute, or
    - Would exceed one minute as a result of ridership added by the Project.
10. Generate added transit ridership that would increase the AM load factor on a County Connection bus line such that it would be over capacity during the AM peak hour (load factor greater than 1.0).
11. Create demand for public transit services above that which is provided or planned; disrupt or interfere with existing or planned transit services or facilities; or create inconsistencies with adopted transit system plans, guidelines, policies, or standards.
12. Disrupt existing bicycle or pedestrian facilities; interfere with planned bicycle or pedestrian facilities; or create inconsistencies with adopted bicycle or pedestrian system plans, guidelines, policies, or standards.

Mitigation measures would subsequently be evaluated that would potentially improve the impacted condition such that the subject threshold would not be exceeded.

Regarding threshold #1 above, none of the study intersections is "Downtown" as defined in the Lafayette General Plan Circulation Chapter (p. II-5).

Existing Conditions

Roadway Network

Regional roadway access to the Project site is provided by Pleasant Hill Road and its interchange ramp connections with State Route 24. State Route 24 and Pleasant Hill Road north of State Route 24 are designated by the Contra Costa Transportation Authority (CCTA) as Routes of Regional Significance. Access to the Project site at the local level is provided by Deer Hill Road.

The existing circulation network within the study area is composed of a State highway, as well as City arterials, collectors, and local streets. Primary roadways within the study area include the following:

- *State Route 24* is an east-west freeway that runs along the south boundary of the Project site, connecting Interstate 680 in Walnut Creek with Interstate 980 and Interstate 880 in Oakland, via the Caldecott Tunnel. The freeway is an eight-lane, divided facility with BART tracks running along the median, including a BART station platform in downtown Lafayette. State Route 24 carries about 178,000 vehicles per day near the Pleasant Hill Road interchange, according to Caltrans data for year 2010. State Route 24 is a CCTA-designated Route of Regional Significance.
- *Pleasant Hill Road* is a four-lane arterial that runs north-south along the east boundary of the Project site, and connects with State Route 24 at a full interchange immediately south of the Project frontage. It connects Deer Hill Road with Mount Diablo Blvd. and Olympic Blvd. to the south and the City of Pleasant Hill, City of Walnut Creek, City of Martinez, unincorporated Contra Costa County, and northeasterly areas of Lafayette to the north, and provides access to Acalanes High School and Springhill Elementary School. The road serves as an alternative route to I-680, particularly during periods of peak congestion on the freeway. Pleasant Hill Road is a CCTA-designated Route of Regional Significance north of State Route 24.
- *Deer Hill Road* is an east-west arterial street that runs along the northwesterly boundary of the Project site, connecting Pleasant Hill Road on the east with Happy Valley Road on the west. It has two lanes between Pleasant Hill Road and First Street, and widens to four lanes with left-turn lanes and raised medians west of First Street, where it provides access to the Lafayette BART station and westbound State Route 24 freeway ramps. Along the northern edge of the Project site, the road is at its steepest, and it curves before descending to meet Pleasant Hill Road. East of Pleasant Hill Road, the street name changes to *Stanley Boulevard*, a two-lane collector street that provides access to Acalanes High School and an alternative route to the City of Walnut Creek.
- *Mount Diablo Boulevard* is an east-west arterial street with two lanes in each direction and sections with either a center left-turn lane or dedicated left-turn lanes and raised medians, which extends from Acalanes Road on the west to Pleasant Hill Road on the east, providing access through the entire length of downtown Lafayette. At its easterly and westerly ends, Mount Diablo Boulevard connects with State Route 24 freeway ramps.
- *First Street* is a four-lane arterial between Mount Diablo Boulevard and Deer Hill Road that runs north-south and connects to State Route 24 with an eastbound freeway on-ramp. North of Deer Hill Road, First Street changes to Sierra Vista, which serves as a two-lane neighborhood collector.
- *Springhill Road* is a two-lane collector street extending northwesterly from its intersection from Pleasant Hill Road, providing access to Springhill Elementary school and a residential

area. The east leg of the Springhill Road/Pleasant Hill Road intersection is *Quandt Road*, a two-lane collector extending easterly to provide access to a residential area.

- *Brown Avenue* is a two-lane collector street that runs north-south, connecting Deer Hill Road and Mount Diablo Blvd. via an underpass at State Route 24. North of Deer Hill Road, Brown Avenue splits into two 2-lane neighborhood collectors: Miller Road and Brown Avenue (private).
- *Reliez Valley Road* is a two-lane collector street extending northerly from its intersection with Pleasant Hill Road, providing access to residential areas westerly of Pleasant Hill Road and Taylor Boulevard, and connecting with Alhambra Valley Road in unincorporated area near the City of Martinez.
- Collector and local streets in the study area also include the following two-lane roadways that mostly serve residential areas: Acalanes Avenue, Green Valley Drive, Rancho View Drive, and Old Tunnel Road.

The key study intersection adjacent to the Project site is Pleasant Hill Road/Deer Hill Road – Stanley Boulevard, which is signalized. The traffic signal timing sequence provides separate green signal phases for left/U-turns from Pleasant Hill Road, eastbound traffic on Deer Hill Road, and westbound traffic on Stanley Boulevard. On southbound Pleasant Hill Road approaching the intersection, the curb lane is a shared bike lane from which right turns are permitted. The existing geometry of the southwest corner curb and resulting southbound roadway width on Pleasant Hill Road south of the intersection constrains the available radius for U-turns from northbound Pleasant Hill Road, which prevents long pickup trucks and larger trucks from completing U-turns in one continuous movement. The resulting stopping and backing up movements contribute to traffic delay and queues at the intersection.

Existing Traffic Volumes

Weekday a.m. (7:00 a.m. to 9:00 a.m.), school dismissal p.m. (2:00 to 4:00 p.m.) and commute p.m. (4:00 p.m. to 6:00 p.m.) peak turning movement counts were collected mostly in May 2011 or early December 2011 at study intersections #1 to #8, with the date exceptions at the Springhill Road/Pleasant Hill Road intersection (#4) as shown in Table II. At the two more westerly intersections of Deer Hill Road – at First Street (#9) and at the SR 24 westbound ramps (#10) – counts were collected in September 2009. Counts for all three peak periods were also collected in early December 2011 at those Pleasant Hill Road junctions with SR 24 ramps that are uncontrolled merging or exiting movements. Detailed count data are provided in Appendix B. These peak hour volumes were increased using an annual growth factor of two percent, projected to 2018.

The two percent growth factor was based on comparing 2011 conditions to more recent 2016 counts performed at five of the study intersections. It was then compared to the most recent CCTA model and CCTA Central County Action Plan for 2014 to confirm the accuracy of this estimate. The CCTA model includes future land use and transportation network assumptions for the entire county, including Lafayette, Pleasant Hill, Martinez, Walnut Creek, Moraga, and unincorporated areas. The CCTA model assumes no development of the Project site.

The existing (2018) peak hour turning movement volumes, as well as lane geometries and traffic controls at the study intersections, are shown in Figure 3. Note that U-turn volumes are included in the left-turn volumes shown at the intersections where U-turns are permitted.

Table II: Dates of Peak Period Intersection Counts

ID	*Intersection*	*Count Date*		
		A.M. Peak	*School P.M. Dismissal*	*P.M. Peak*
1	Rancho View Drive/Pleasant Hill Road	May 2011	December 1, 2011	May 2011
2	Green Valley Drive/Pleasant Hill Road	May 2011	December 1, 2011	May 2011
3	Reliez Valley Road/Pleasant Hill Road	May 2011	December 1, 2011	May 2011
4	Springhill Road – Quandt Road/Pleasant Hill Road	January 10, 2012	December 1, 2011	September 2010
5	Deer Hill Road – Stanley Blvd./Pleasant Hill Road	December 1, 2011	December 1, 2011	December 1, 2011
6	Mt. Diablo Boulevard/Pleasant Hill Road	May 2011	December 1, 2011	May 2011
7	SR 24 EB Off-Ramp/Pleasant Hill Road	May 2011	December 1, 2011	May 2011
8	Deer Hill Road/Brown Avenue	May 2011	(No count)	May 2011
9	Deer Hill Road/First Street – Sierra Vista Way	September 2009		
10	Deer Hill Road/SR 24 WB Ramps – Laurel Drive			

Intersection Level of Service Analysis Results, Existing Conditions

Existing levels of service for each study intersection were calculated based on the existing intersection geometry, traffic control, and a.m., school dismissal p.m., and commute p.m. peak hour traffic volumes. Table III illustrates the results of the level of service analysis using the HCM 2010 methodology for the study intersections under Existing Conditions. Detailed level of service calculations are contained in Appendix C. Under Existing Conditions, all of the signalized study intersections are operating within acceptable City LOS standards except the following two:

- Deer Hill Road – Stanley Blvd./Pleasant Hill Road: LOS F during the a.m. peak hour, LOS E during the p.m. peak hour
- Deer Hill Road/SR 24 Westbound Ramps – Laurel Drive: Poor LOS D, a.m. and p.m. peaks

At the only Existing unsignalized study intersection, the northbound and southbound stop-controlled minor approaches on Brown Avenue at Deer Hill Road currently operate at LOS F during the a.m. and p.m. peak hours. The California Manual on Uniform Traffic Control Devices (MUTCD) peak hour traffic signal warrant is met for both peak hours under Existing conditions.

Table III: Peak Hour Intersection Levels of Service – Existing Conditions

ID	Intersection	Existing Conditions					
		A.M. Peak Hour		School P.M. Peak Hour		P.M. Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS
1	Rancho View Drive/Pleasant Hill Road	22.3	C	11.2	B	11.0	B
2	Green Valley Drive/Pleasant Hill Road	3.1	A	6.8	A	5.1	A
3	Reliez Valley Road/Pleasant Hill Road	13.0	B	9.9	A	6.5	A
4	Springhill Road – Quandt Road/ Pleasant Hill Road	40.9	D	8.7	A	9.7	A
5	Deer Hill Road –Stanley Blvd./ Pleasant Hill Road	**184.4**	**F**	**49.3**	**D**	**77.4**	**E**
6	Mt. Diablo Boulevard – SR 24 EB On-ramp/Pleasant Hill Road	16.4	B	21.0	C	31.8	C
7	SR 24 EB Off-Ramp – Old Tunnel Road/Pleasant Hill Road	8.5	A	9.6	A	10.7	B
8	Deer Hill Road/Brown Avenue	**386.5**	**F**	-	-	**761.3**	**F**
9	Deer Hill Road/First Street – Sierra Vista Way	18.3	B	17.7	B	19.3	B
10	Deer Hill Road/SR 24 WB Ramps –Laurel Drive	**71.8**	**E**	38.7	D	**67.6**	**E**

Notes: 1) LOS=Level of Service, Delay = Average control delay per vehicle in seconds
2) Signalized and all-way stop controlled intersections – Delay / LOS is for overall intersection
3) Unsignalized one- and two-way stop controlled intersections – Delay / LOS is for critical minor stop-controlled approach.
4) **Bold** indicates unacceptable operational conditions based on applicable City standards.
5) "Good" LOS D is defined as 35 to 45 seconds of average control delay per vehicle. "Poor" LOS D is defined as 45 to 55 seconds of average delay.
6) NA=Not analyzed. At intersection #8, a.m. and p.m. commute peaks provide worst-case results.

Pleasant Hill Road Corridor Traffic Simulation

TJKM completed the Pleasant Hill Road Corridor Study in 2017 to evaluate existing conditions and provide recommendations for traffic operations at five study intersections between Rancho View Drive and Deer Hill Road – Stanley Boulevard. After implementation of optimized signal timing, field observations and floating car surveys were conducted on the corridor in late 2016 to evaluate the resulting conditions. During the a.m. peak hour, the optimized and coordinated signal timing along the corridor is able to regulate southbound traffic flow to ease the former bottleneck at Deer Hill Road – Stanley Boulevard and reduce the amount of congestion extending into upstream intersections.

Although the study intersection at Deer Hill Road – Stanley Boulevard still operates poorly, it was observed that all southbound turn queues are able to clear the intersection during a single cycle. This is not the case for southbound through traffic. The Existing conditions model was calibrated in SimTraffic to be somewhat more conservative than these observed/measured field conditions such as travel time, delay, queues, and saturation flow rates for both directions on Pleasant Hill Road for the a.m. peak period. This more conservative model most closely resembles average conditions during the worst portion of the a.m. peak hour, showing more southbound congestion than that shown in the field. In effect, the LOS F conditions at the Deer Hill Road – Stanley Boulevard intersection would also occur upstream at the Springhill Road/Quandt Road, Reliez Valley Road, Green Valley Drive, and Rancho View Drive intersections, which impacts southbound Pleasant Hill

Road traffic and other traffic movements that conflict with southbound traffic at each intersection. However, the City's intersection LOS standards described in the previous Level of Service Analysis Methodology section are based on the LOS results calculated at each intersection individually, which are the results shown in Table III. The same calibration parameters were then applied to the SimTraffic models for the school p.m. and p.m. peak hours. The results presented as follows provide important information to supplement the intersection LOS results.

Segment Speeds

TJKM also analyzed existing traffic conditions on segments of Pleasant Hill Road between the free-flow freeway ramp junctions at SR 24 and Deer Hill Road/Stanley Boulevard using SimTraffic, to establish existing baseline speeds for comparison to weaving conditions with the Project. The resulting peak-hour average speeds on the study segments are shown in Table IV. The average speeds for the northbound Pleasant Hill Road segment reflects the delay and queues extending back from the intersection at Deer Hill Road – Stanley Boulevard.

Table IV: Pleasant Hill Road Weaving Segment Speeds – Existing Conditions

Segment of Pleasant Hill Road	*Existing Average Speeds (mph)*		
	A.M. Peak Hour	*School P.M. Peak Hour*	*P.M. Peak Hour*
Northbound Pleasant Hill Road between Acalanes Drive and Deer Hill Road/Stanley Boulevard	9	14.5	11.5
Southbound Pleasant Hill Road between Project Driveway and SR 24 WB on-ramp	23	21.5	25.5

Note: Average speeds are SimTraffic simulation model results.

In December 2011,-TJKM conducted field surveillance during the p.m. peak's heavily congested period on northbound Pleasant Hill Road to observe the portion of traffic turning right onto Acalanes Avenue that currently cuts through the neighborhood to avoid that congestion by using westbound Stanley Boulevard to access Deer Hill Road or continue northbound on Pleasant Hill Road. As the neighborhood southeast of Pleasant Hill Road/Stanley Boulevard is already built up, it is unlikely that there would be an increase in residential traffic or altered commute patterns. The 2011 observations are included below in full, as TJKM does not expect neighborhood traffic conditions to have changed substantially.

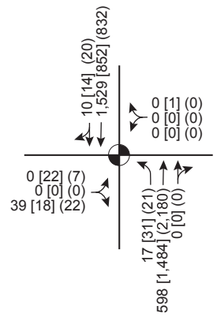
As shown on Figure 3, the existing right-turn volume from northbound Pleasant Hill Road onto Acalanes Avenue is approximately 43 vehicles during the p.m. peak hour. TJKM sampled a majority of the vehicles turning right onto Acalanes Avenue for more than an hour between approximately 4:45 and 6:00 p.m. to observe their subsequent routes through the neighborhood. A large portion of vehicles turned onto the local neighborhood streets north and south of Acalanes Avenue that have no other outlet, or into residential driveways on Acalanes Avenue, Nogales Street, and Camino Diablo, to access homes. Another significant portion turned left onto Nogales Street, then either right onto Camino Diablo toward areas to the south and east, or left onto Camino Diablo and then right onto Stanley Boulevard toward a residential neighborhood. Only one of the vehicles observed turning right onto Acalanes Avenue continued through the neighborhood to turn left onto westbound Stanley Boulevard and drive back to the Pleasant Hill Road intersection, where it turned right to continue northbound.

City of Lafayette - The Terraces of Lafayette EIR

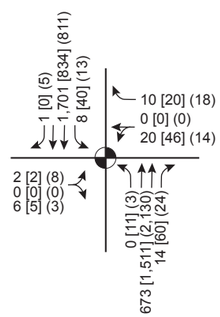
Existing Traffic Volumes, Lane Geometry, and Controls

Figure 3

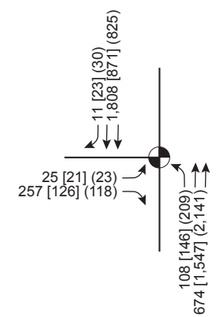
Intersection #1
Pleasant Hill Rd./Rancho View Dr.



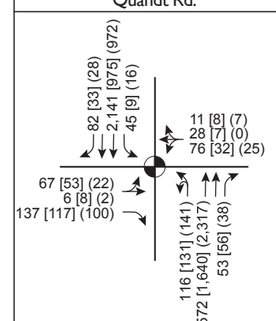
Intersection #2
Pleasant Hill Rd./Green Valley Dr.



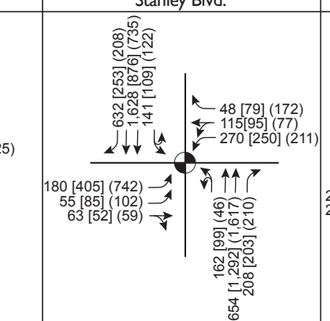
Intersection #3
Pleasant Hill Rd./Reliez Valley Rd.



Intersection #4
Pleasant Hill Rd./Springhill Rd./ Quandt Rd.

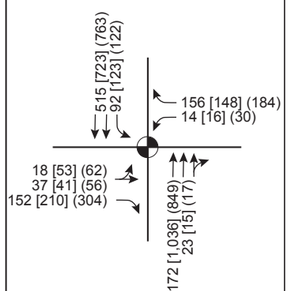


Intersection #5
Pleasant Hill Rd./Deer Hill Rd./ Stanley Blvd.

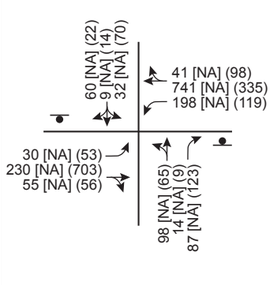


Intersection #6
Pleasant Hill Rd./Mt. Diablo Blvd./ SR 24 WB On Ramp

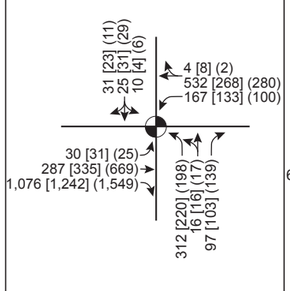
Intersection #7
Pleasant Hill Rd./Old Tunnel Rd./ SR 24 EB Off Ramp



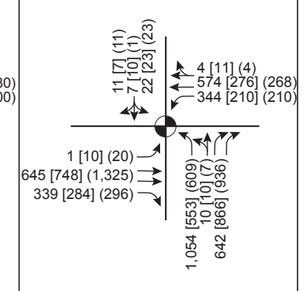
Intersection #8
Brown Ave./Deer Hill Rd.



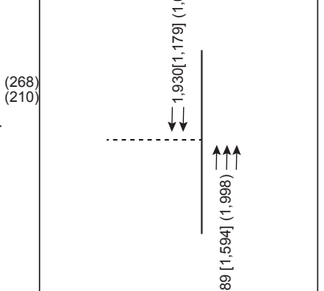
Intersection #9
First St./Sierra Vista Wy./Deer Hill Rd.



Intersection #10
SR 24 WB Ramps Laurel Dr./Deer Hill Rd.

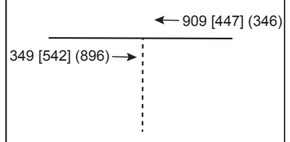


Intersection #11
Pleasant Hill Rd./Project Dwy.

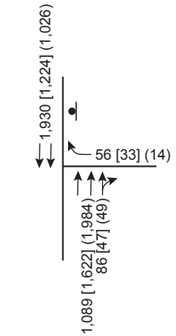


Intersection #12
Deer Hill Rd./East Project Dwy.

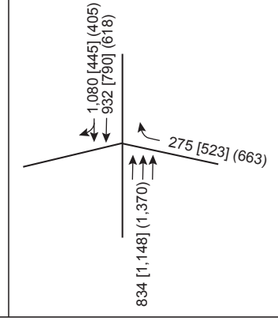
Intersection #13
Deer Hill Rd./West Project Dwy.



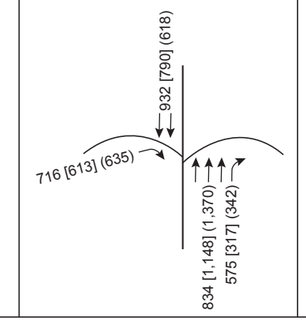
Intersection #14
Pleasant Hill Rd./Acalanes Ave.



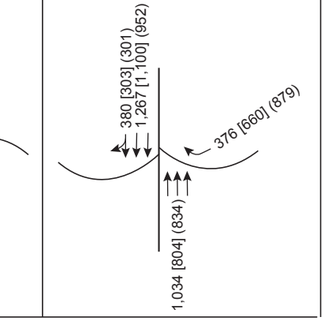
Intersection #15
Pleasant Hill Rd./ SR 24 WB Direct Ramps

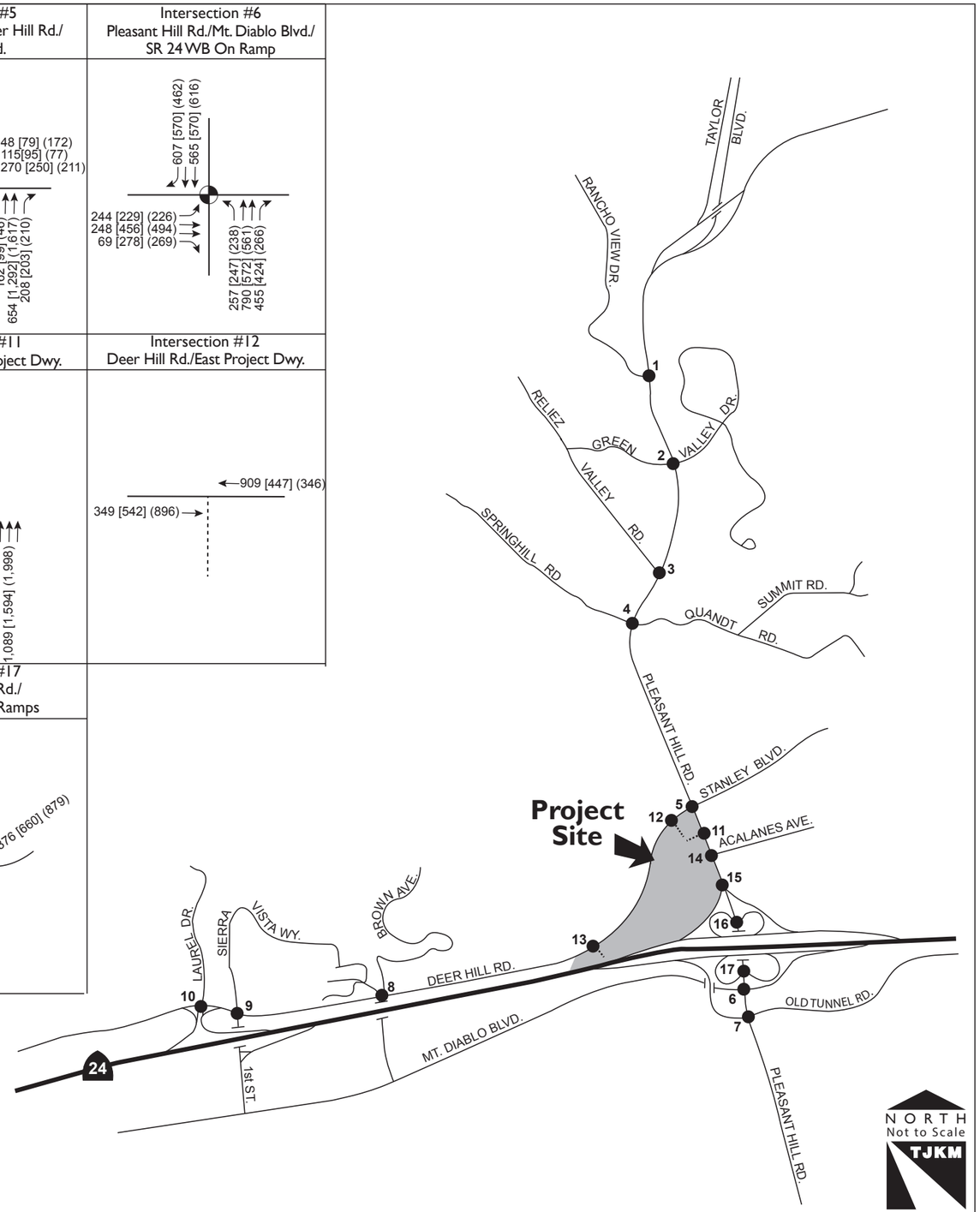


Intersection #16
Pleasant Hill Rd./ SR 24 WB Loop Ramps



Intersection #17
Pleasant Hill Rd./ SR 24 EB Loop Ramps





LEGEND	
●	Study Intersection
- - -	Future Driveway
XX	AM Peak Hour Volume
[XX]	School PM Peak Hour Volume
(XX)	PM Peak Hour Volume

007-035

Recent Traffic Accident History

TJKM reviewed traffic collision data for the most recent four-year period available from the Statewide Integrated Traffic Records System (SWITRS). "Property damage only," non-injury accidents were reported in the SWITRS data for this four-year period, and were specifically accounted for in this accident history review. Accident report files maintained by the Contra Costa County Sheriff's Department that include non-injury accidents were not available at the time this report was prepared. However, the SWITRS data provides sufficient detail on collisions with injuries, which include collisions involving pedestrians and bicyclists, for the purpose of evaluating the potential traffic safety impacts of the proposed Project. For roadways in the Project site vicinity, the four-year traffic accident history is summarized as follows:

- Pleasant Hill Road, between State Route 24 and Taylor Boulevard: 10 collisions reported, including one pedestrian accident resulting in severe injury.
- Deer Hill Road, between Pleasant Hill Road and Brown Avenue: no collisions reported.
- Stanley Boulevard: no collisions reported.

The collision rates based on the traffic volumes for these roadway segments are lower than the statewide average collision rates for roadways of similar types, and do not suggest any unusually hazardous traffic conditions.

Existing Transit Facilities

Public transit systems in Lafayette that are relevant to the Project site, including both local bus and Bay Area Rapid Transit (BART) regional rail service, are described below.

BART

The Project site is located approximately 1.5 miles east on Deer Hill Road from the Lafayette BART Station platform, which is located in the median of State Route 24 between Oak Hill Road and Happy Valley Road. The Pittsburg/Bay Point–San Francisco International Airport line serves the station seven days a week. Weekday service is provided between 4:00 a.m. and midnight, with Saturday service between 6:00 a.m. and mid-night and Sunday service between 8:00 a.m. and midnight. Weekday service ranges from 5- to 10-minute headways in the peak direction (5- to 15-minutes in the non-peak direction) during the AM and PM peak commute periods, to 15- to 20-minute headways during off-peak midday and late evening periods. On weekends, 20-minute headways are provided all day.

According to the 2008 BART Station Profile Study, parking at the Lafayette BART Station consists of 1,526 spaces, including 380 monthly permit spaces and the remaining 1,146 requiring a daily fee. The number of parking spaces includes the small parking lot on the south side of the station accessed from Happy Valley Road. The updated 2014 study reported 1,529 total parking spaces, but it did not provide a breakdown by space type. In addition, 155 bicycle spaces are provided at the station, consisting of 12 shared use electronic bike lockers, 30 keyed bike lockers, and 113 bike rack slots. Bicycle access the station's north side has relatively gentle grade connections to adjacent roadways, including bike lanes on Deer Hill Road. The BART website reports that all parking spaces at the Lafayette BART Station typically fill up by 7:00 a.m. on weekdays. Based on observations conducted in October 2011, parking spaces fill up later on Fridays when parking demand is lower than on other days.

Bus Transit

Bus service is provided locally by the Central Contra Costa Transit Authority's (CCCTA) County Connection. One fixed-route bus line, Route 25, is available at a reasonable walking distance within

one-half mile of the Project site at bus stops near the intersection of Pleasant Hill Road and Mount Diablo Boulevard. Route 25 provides east-west service along Mount Diablo Boulevard and Olympic Boulevard, connecting the Lafayette and Walnut Creek BART Stations. Route 25 makes several local stops along Mount Diablo Boulevard between the Lafayette BART Station and Pleasant Hill Road, and a few stops on Pleasant Hill Road and Olympic Boulevard, then uses the Interstate 680 freeway before terminating at the Walnut Creek BART Station. Route 25 is designed to provide a continuous system ride, especially for employees in downtown Lafayette, between areas to the east of Lafayette and the downtown. County Connection riders can stay on that same transit system at the Walnut Creek BART station transit hub, rather than transferring to BART and paying an additional fare, to access Downtown Lafayette. This weekday-only route operates between 7:30 a.m. and 7:47 p.m., with hourly headways in both directions during peak times and 110-130 minute headways off-peak. Route 25 buses operate at less than capacity with seating available; the CCCTA FY 2017 Comprehensive Operations Analysis shows average weekday ridership of 66 passengers per day.

Other Local Transit Services

Lamorinda School Bus Program
The City of Lafayette participates in a collaborative program with the City of Orinda and Town of Moraga to provide school bus service in the Lamorinda area. The goal of the program is to mitigate traffic congestion in Lamorinda on roadways south of State Route 24 by reducing the number of drivers on these streets. The CCTA funds a significant portion of the program, with supplemental funding from fees paid by (parents of) riders and grant funding. The program serves Stanley Middle School and Springhill Elementary School, which have enrollment areas that include the Project site, as well as Burton Valley School.

City of Lafayette Spirit Van
The City operates the Spirit Van program for its senior residents, with door-to-door service provided by volunteer drivers.

Existing Pedestrian and Bicycle Facilities

Pedestrian Facilities

The Project site is currently served by very limited pedestrian facilities. Deer Hill Road has no sidewalks in the Project vicinity, and pedestrians must use either the unimproved, irregular ground surface behind the raised curb or the Class II on-street, striped bicycle lane within the paved roadway. Pedestrian activity along Deer Hill Road is relatively light, except the section within 200 feet west of Pleasant Hill Road, where the south side of the roadway is frequently used by Acalanes High School (AHS) students being dropped off or picked up before and after school. The City's Master Walkways Plan includes adding a walkway on the north side of Deer Hill Road from Pleasant Hill Road west to Brown Avenue, but identifies this as a "Priority 4" project out of four priority categories.

The west side of Pleasant Hill Road has very limited sidewalks in the Project vicinity. No sidewalk exists along the immediate Project frontage south of Deer Hill Road, an area frequently used by AHS students being dropped off or picked up before and after school as well as pedestrians who have parked vehicles at the curb spaces on that segment. These pedestrians must use the unimproved, irregular ground surface behind the raised curb, which becomes very narrow next to a retaining wall along the southerly portion of the Project frontage. Near the southeast corner of the Project site, approximately 300 feet north of the on-ramp to westbound SR 24, a sidewalk on the west side begins and extends to the south along Pleasant Hill Road. North of Deer Hill Road, the only existing sidewalk on the west side of Pleasant Hill Road is a short segment extending approximately 150 feet

north from Deer Hill Road. The City's Master Walkways Plan (2015) includes adding a walkway on the west side of Pleasant Hill Road from the SR 24 westbound on-ramp to Reliez Valley Road, and identifies this as a "Priority 2" project out of four priority categories.

Continuous sidewalk is provided on the east side of Pleasant Hill Road across from the Project site, extending north along AHS and south toward Olympic Boulevard. Approximately 600 feet south of the Quandt Road/Pleasant Hill Road intersection, the sidewalk ends at a connection with Hillview Lane, and pedestrians must walk along a narrow residential access roadway parallel to Pleasant Hill Road and separated by a landscaped fence. Stanley Boulevard has continuous sidewalk on the north side along AHS frontage and extending east into a residential neighborhood, but the sidewalk on the south side extends approximately 275 feet east from Pleasant Hill Road and ends at a residential driveway. The City's Master Walkways Plan includes completion of walkways on both sides of Stanley Boulevard between Pleasant Hill Road and Camino Diablo to address missing links, and identifies this as a "Priority 2" project out of four priority categories.

Marked crosswalks and pedestrian signal indications are provided for crossing the west, south, and east legs of the signalized Deer Hill Road – Stanley Blvd./Pleasant Hill Road intersection, which is heavily used by AHS pedestrians before and after school. However, a large number of AHS pedestrians "jaywalk" across Stanley Boulevard within 100 to 275 feet east of the signalized intersection, with nearly 100 pedestrians observed crossing in this area on their way to AHS before school. Pedestrians apparently find crossing in this area more convenient than waiting for the signal to cross Stanley Boulevard at the intersection, which very few pedestrians were observed doing. Although crossing traffic in this roadway segment is somewhat hazardous, especially in the wider, multi-lane section close to the intersection, the large numbers of high school age pedestrians crossing mostly during a 20-minute period before and after school every day make them fairly visible to drivers. State-Wide Integrated Traffic Records System (SWITRS) data provided by the City's Engineering staff for a recent four-year period shows no reported accidents involving pedestrians in the Project vicinity. Safer pedestrian conditions in this segment might be encouraged by installing a fence or barrier rail along the north curb of Stanley Boulevard between Pleasant Hill Road and the AHS exit driveway approximately 175 feet to the east, and installing a school crosswalk on Stanley Boulevard at that driveway. However, a fence or barrier along the curb could present a safety issue for drivers and a visual impact for the public, and installing an acceptable crosswalk design would be very challenging because of existing driveways and a drainage inlet on the north curb across from the AHS driveway.

Pedestrian safety and convenience walking along both sides of Pleasant Hill Road between the Project site and Mount Diablo Boulevard is challenged at three to four crosswalks that require crossing uncontrolled free-flow traffic to and from SR 24 freeway ramps or a right turn to westbound Mount Diablo Boulevard. City staff has suggested potential improvement concepts for these crosswalks to Caltrans, which has jurisdiction over these freeway ramp junctions, but further action toward any improvements is undetermined. The City is in the process of seeking funds to conduct a corridor study to improve pedestrian and bike access and safety between Mount Diablo Boulevard and Springhill Road/Quandt Road.

Bicycle Facilities

The Project site is served reasonably well by existing bicycle facilities, but a gap exists along the Project's Pleasant Hill Road frontage. A Class II (on-street, striped) bicycle lane is provided on southbound Pleasant Hill Road north of Deer Hill Road and south of Mount Diablo Boulevard, but not on the segment between those two roadways, where bicyclists must share a lane with motor vehicle traffic alongside curb parking. The City's Bikeways Master Plan shows continuous Class II

bicycle lanes for this area of Pleasant Hill Road. Northbound Pleasant Hill Road and both directions on Deer Hill Road include continuous Class II bicycle lanes in the Project vicinity. Stanley Boulevard has bicycle shared-lane pavement markings, known as "sharrows," which are consistent with the Bikeways Master Plan designation of Stanley Boulevard as a "Bike Boulevard." Traffic counts and observations indicate that several bicyclists per hour travel these roadways and facilities.

Steep grades on Deer Hill Road present a physical challenge for bicyclists, which may discourage potential bicycle travel. The City's Bikeways Master Plan (2006) proposes constructing a Class I (off-street) bicycle path between Pleasant Hill Road and the Brown Avenue/Deer Hill Road intersection on an alignment along the north side of the Caltrans SR 24 right-of-way. This alignment near the base of the hill that Deer Hill Road climbs over would provide much less elevation change and easier grades for bicyclists. The Bikeways Master Plan also proposes extending the Class I bike path easterly of Pleasant Hill Road, but states that the method of crossing Pleasant Hill Road is to be determined. According to City Engineering staff, the most recent discussions of the planned bike path would propose crossing Pleasant Hill Road at the Deer Hill Road/Stanley Boulevard traffic signal, with an off-street path along the west side of Pleasant Hill Road connecting between the signal and the Caltrans right-of-way.

Bicyclist safety and convenience traveling in both directions on Pleasant Hill Road between the Project site and Mount Diablo Boulevard is challenged at three to four locations where bicyclists encounter conflicting uncontrolled free-flow traffic to and from SR 24 freeway ramps or a right turn to westbound Mount Diablo Boulevard. City staff has suggested potential improvement concepts for these locations to Caltrans, which has jurisdiction over the subject freeway ramp junctions, but further action toward any improvements is undetermined. The City is in the process of seeking funds to conduct a corridor study to improve bicycle and pedestrian access and safety between Mount Diablo Boulevard and Springhill Road/Quandt Road. SWITRS data provided by the City's Engineering staff for a recent four-year period shows no reported accidents involving bicyclists in the Project vicinity.

Existing Parking and Passenger Loading Areas

Fronting the Project site along the southbound, west side of Pleasant Hill Road south of Deer Hill Road, parallel curb parking spaces are marked, with signs posted to prohibit parking all day on Saturdays, Sundays and holidays, and from 3:00 to 6:00 a.m. Monday through Friday. However, the portion immediately south of Deer Hill Road is designated by white curb and posted signs as a "Passenger Loading Zone" for approximately 80 feet, or four car lengths. Between the loading zone and the on-ramp to the westbound SR 24 freeway, 19 curb parking spaces are designated with white pavement markings. Additionally, the Project site's private property has a gravel area that is accessible to vehicles at a curb opening on southbound Pleasant Hill Road, which is occasionally used for off-street parking and passenger loading.

South of the Project frontage, between the westbound freeway on-ramp and Mount Diablo Boulevard, another 22 curb parking spaces are marked on the west side of Pleasant Hill Road, and 14 curb parking spaces are marked on the east side of Pleasant Hill. On-street parking is prohibited on both sides of the roadway on all other segments of Pleasant Hill Road, on Deer Hill Road, and on Stanley Boulevard between Pleasant Hill Road and a point approximately 200 feet west of Camino Diablo.

In late January 2012, TJKM observed the usage of the existing parking and passenger loading areas fronting the Project site along the west side of Pleasant Hill Road, as well as passenger loading activity at other locations in the vicinity. These observations are included below in full. As there

have been no changes to parking lot, loading zone, or driveway configurations, TJKM does not expect parking and loading operations to have changed substantially.

Observations were conducted before and after school on regular session days at Acalanes High School (AHS) during non-rainy weather. The observations of parking occupancy along the west side of Pleasant Hill Road are summarized as follows:

- A maximum of 13 vehicles parked along the curb between the loading zone and the on-ramp to westbound SR 24. (Several of these vehicles were parked by contractors working on a roadway improvement project toward the south end of Pleasant Hill Road, based on drivers observed being dropped off from the contractor's trucks in the afternoon; the improvement project has been completed.)
- No vehicles were observed parking on the Project site property except for the short-term passenger loading activity described below.
- A maximum of six vehicles parked south of the westbound freeway on-ramp, no more than two of which parked in the northerly ten spaces between the westbound on-ramp and the westbound-to-southbound loop off-ramp, with the majority parked in the spaces closest to Mount Diablo Boulevard. At the maximum occupancy observed, 16 parking spaces remained available south of the westbound on-ramp.

Observations of passenger loading activity along the west side of Pleasant Hill Road south of Deer Hill Road are summarized as follows:

- In the morning before school, a maximum of 14 vehicles dropped off students at the curb loading zone. The maximum number of vehicles present at any given time did not exceed the four-car capacity of the loading zone. No vehicles entered the Project site property during the morning observations.
- In the afternoon at school dismissal, a maximum total of 23 vehicles picked up students at the curb loading zone or Project site property, with no more than six of the vehicles parking for a short time on the Project site property to wait for students. A maximum total of 14 vehicles was present at one time, using the loading zone to capacity (4 vehicles), the Project site property (5-6), and the curb area south of the loading zone (4-5) including vehicles briefly blocking the curb opening that provides access for the Project site property.
- Vehicles arrived at this loading area via U-turns from northbound Pleasant Hill Road (at the Deer Hill Road intersection), through traffic on southbound Pleasant Hill Road, and a few right turns from eastbound Deer Hill Road.

TJKM also observed passenger loading activity for AHS students occurring at several other locations, including:

- On eastbound Deer Hill Road, up to 40 students were dropped off from vehicles stopped in the traffic queue extending back from the Pleasant Hill Road signal in the morning before school, and then walked east on the roadway in the bike lane to reach the intersection corner. In the afternoon after school, a small number of students were picked up in the right traffic lane on eastbound Deer Hill Road.
- On northbound Pleasant Hill Road, at least 12 students per day were dropped off from vehicles stopped in the traffic queue extending back from the Deer Hill Road/Stanley Blvd. signal in the morning before school. Students exited from vehicles in all traffic lanes (left, through and right), in an area extending at least 150 feet south from the intersection crosswalk. Some of the students dropped off from the left-turn lane walked north on the

raised median to reach the crosswalk on the south leg of the intersection, but most walked across traffic lanes between cars to reach the east side of Pleasant Hill Road. At times, students had to cross moving traffic in the northbound right-turn lane. In the afternoon after school, a small number of students were picked up in the left-turn lane on northbound Pleasant Hill Road after walking west in the crosswalk to reach the lane. This activity on northbound Pleasant Hill Road south of Stanley Boulevard clearly presents hazards for the student pedestrians involved.

- A few students were dropped off or picked up at the gas station on the southeast corner of Pleasant Hill Road and Stanley Boulevard.
- On northbound Pleasant Hill Road north of the driveway for the AHS main parking lot, some passenger loading activity occurs in the bike lane, which is posted as a no parking zone. After dropping off students at this location, some drivers turn right at the high school driveway south of the tennis courts, make a U-turn using the parking lot aisle, and exit the driveway by turning left onto southbound Pleasant Hill Road, which is a difficult movement during the morning peak hour.
- On westbound Stanley Boulevard, passenger loading along the north curb occurs mostly between the main AHS parking lot entrance driveway and the Springbrook Pool driveway, using the red curb area at the bus stop or along the traffic lane while stopped in the queue. Relatively little passenger loading activity was observed east of the Springbrook Pool driveway, and curb parking spaces remained available on the north side of Stanley Boulevard near Camino Diablo.
- A great portion of the passenger loading takes place on-campus along the AHS parking lot aisles, which are accessed at an entrance driveway and an exit driveway on Stanley Boulevard, and a right-turn-only driveway on Pleasant Hill Road. The parking lot aisles and the driveway intersections at Stanley Boulevard are congested during the peak times immediately before and after school.

Existing plus Project Conditions

This scenario uses Existing Conditions as a baseline, but adds traffic generated by the proposed Project and evaluates the Project's potential impacts on transportation as described below. The purpose of the Existing plus Project Conditions traffic analysis is to show the potential near-term effects of a full build-out of the proposed Project for California Environmental Quality Act (CEQA) purposes. Figure 2 shows the Project site plan (dated December 13, 2018).

Project Description Summary

The proposed Project consists of constructing a 315-unit apartment complex in new buildings on the site, which is bounded by Deer Hill Road on the northwest, Pleasant Hill Road on the east, and SR 24 on the south. Vehicle access to the Project site would be provided at a driveway on Pleasant Hill Road that is proposed to allow southbound right-turn access only, and two driveways on Deer Hill Road located toward the westerly and northeasterly boundaries of the site.

Project Trip Generation

TJKM estimated Project trip generation based on data presented in the professional standard reference *ITE Trip Generation*, 8th Edition and the guidelines in the ITE *Trip Generation Handbook*. No trip reductions were applied because the site is not within reasonable walking distance of significant public transit services or complementary retail or employment land uses, based on published research data. "Reasonable walking distance" in the published data is typically considered to range from at least ¼-mile to ½-mile. Table V below summarizes the Project trip generation results.

Table V: Project Trip Generation

Land Use (ITE Code)	Size	Daily		A.M. Peak Hour					School P.M. Peak Hour					P.M. Peak Hour				
		Rate[2]	Trips	Rate[2]	In:Out	In	Out	Total	Rate[3]	In:Out	In	Out	Total	Rate[2]	In:Out	In	Out	Total
Apartments (220)[1]	315 DU	6.45	2,032	0.50	20:80	32	126	158	0.47	48:52	71	77	148	0.61	65:35	124	67	191

Notes: DU = Dwelling Units

[1.] Source – *ITE Trip Generation*, 8th Edition, Regression Equations

[2.] Rates calculated based on Total trips from regression equation divided by Size:

Daily: Total trips = 6.06 (DU) + 123.56

A.M. Peak: Total trips = 0.49 (DU) + 3.73

P.M. Peak: Total trips = 0.55 (DU) + 17.65

[3.] School P.M. Peak Rate is the same proportion of the Daily Rate as that used in the *Lafayette Downtown Specific Plan Draft EIR* for residential land use, based on Urban Land Institute (ULI) published data and other available traffic studies

As shown in Table V, the Project is expected to generate 158 trips during the a.m. peak hour (32 inbound and 126 outbound), 148 trips during the mid-afternoon school dismissal p.m. peak hour (71 inbound and 77 outbound), and 191 trips during the commute p.m. peak hour (124 inbound and 67 outbound). The School dismissal PM peak hour trips are a percentage of the total daily trips generated by the Project, based on Urban Land Institute (ULI) published data and other available traffic studies, and assuming that nearly all of the daily trips would occur from 6:00 a.m. to 10:00 p.m.

Project Trip Distribution and Assignment

Trip distribution is a process that determines in what proportion vehicles would travel between a Project site and various destinations outside the Project study area. The process of trip assignment

determines the various routes that vehicles would take from the Project site to each destination using the calculated trip distribution.

Trips that would be generated by the proposed Project were assigned to the adjacent roadway network based on the land use distribution and prevailing traffic patterns in the surrounding area, as well as the location of freeway ramp connections and the proposed Project access driveways. The resulting percentage distribution of Project-generated trips is presented in *The Terraces of Lafayette Traffic Impact Study* by Abrams Associates (Abrams TIS), dated June 30, 2011, and is shown in Figure 4. TJKM concurs with this Project trip distribution.

However, the assignment of Project trips to the roadway network as presented herein uses the Project Trip Generation estimates described in Table V above instead of the trip generation estimates presented in the Abrams TIS. The resulting Project trip assignments are shown in Figure 4. These assigned Project trips were added to Existing Conditions traffic volumes to generate the Existing plus Project traffic volumes shown in Figure 5.

Intersection Lane Geometry and Traffic Controls

Figure 5 also shows the intersection lane geometries and traffic controls assumed in the analysis of Existing plus Project conditions. The key assumptions are summarized as follows:

- At the three Project driveways, TJKM assumed stop signs controlling traffic exiting the driveways.
- At the Project driveway on Pleasant Hill Road, proposed access would be limited to right turns to and from the southbound lanes. Left turns into and out of the site from Pleasant Hill Road would be prohibited by a raised median.
- At the eastern Project driveway on Deer Hill Road, the Project proposes to construct a westbound left turn lane for vehicles entering the site.
- The Project proposes to add a third southbound through lane on Pleasant Hill Road, beginning just north of Deer Hill Road – Stanley Blvd. that would act as a trap lane for the SR 24 westbound on-ramp.

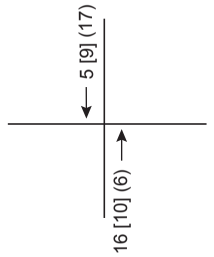
Pleasant Hill Road Improvements

To improve the Deer Hill Road – Stanley Blvd./Pleasant Hill Road intersection, Project plans propose roadway widening to add a third lane for southbound through traffic on Pleasant Hill Road between Deer Hill Road – Stanley Blvd. and SR 24. The additional southbound lane as shown on the Project plans would start approximately 150 feet north of Deer Hill Road and extend south along the entire Project frontage on Pleasant Hill Road to become a right-turn-only lane for the on-ramp to westbound SR 24. Traffic engineers often refer to this type of configuration with a through lane leading into a required turn lane as a "trap lane." The proposed lane configuration would also eliminate existing curb parking and loading zones along the west curb (addressed in a subsequent section of this report.).

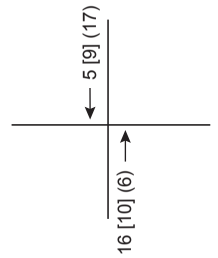
Project Trip Distribution and Assignment

Figure 4

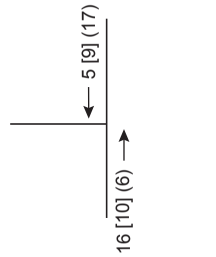
Intersection #1
Pleasant Hill Rd./Rancho View Dr.



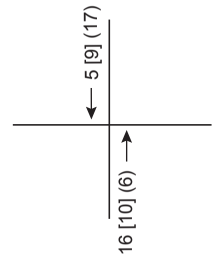
Intersection #2
Pleasant Hill Rd./Green Valley Dr.



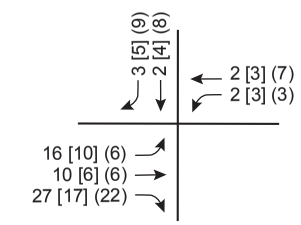
Intersection #3
Pleasant Hill Rd./Reliez Valley Rd.



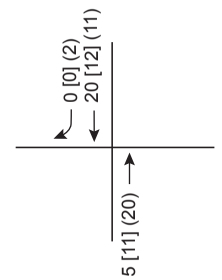
Intersection #4
Pleasant Hill Rd./Springhill Rd./
Quandt Rd.



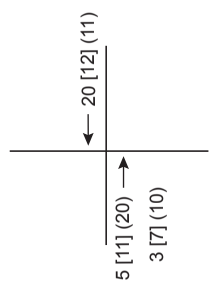
Intersection #5
Pleasant Hill Rd./Deer Hill Rd./
Stanley Blvd.



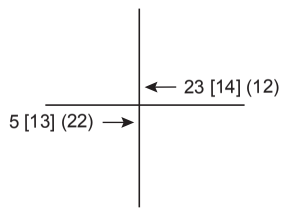
Intersection #6
Pleasant Hill Rd./Mt. Diablo Blvd./
SR 24 WB On Ramp



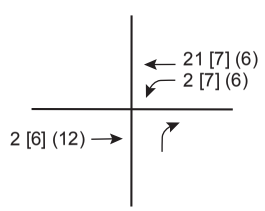
Intersection #7
Pleasant Hill Rd./Old Tunnel Rd./
SR 24 EB Off Ramp



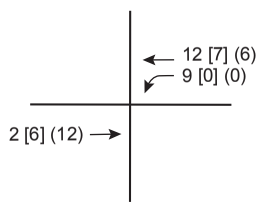
Intersection #8
Brown Ave./Deer Hill Rd.



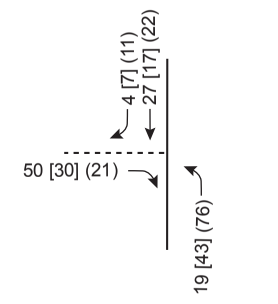
Intersection #9
First St./Sierra Vista Wy./Deer Hill Rd.



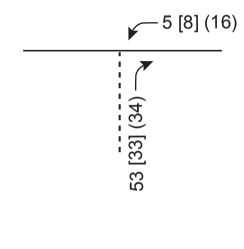
Intersection #10
SR 24 WB Ramps
Laurel Dr./Deer Hill Rd.



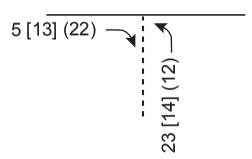
Intersection #11
Pleasant Hill Rd./Project Dwy.



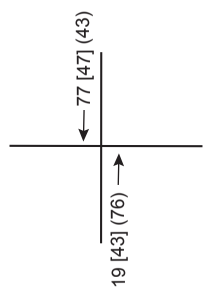
Intersection #12
Deer Hill Rd./East Project Dwy.



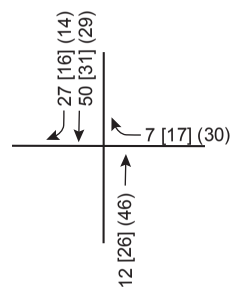
Intersection #13
Deer Hill Rd./West Project Dwy.



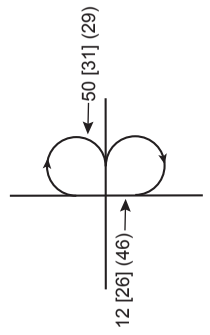
Intersection #14
Pleasant Hill Rd./Acalanes Ave.



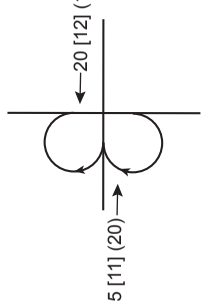
Intersection #15
Pleasant Hill Rd./
SR 24 WB Direct Ramps

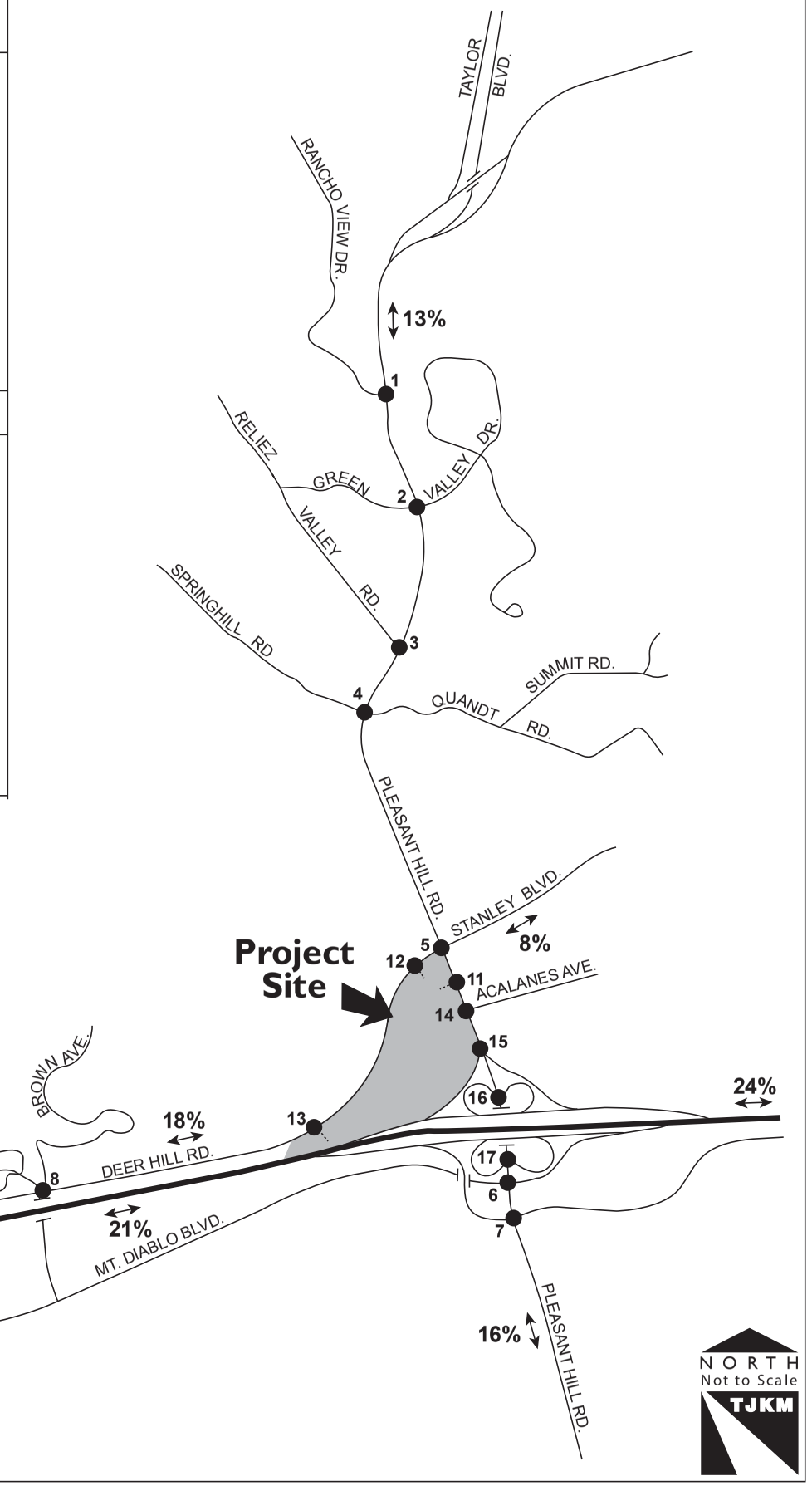


Intersection #16
Pleasant Hill Rd./
SR 24 WB Loop Ramps



Intersection #17
Pleasant Hill Rd./
SR 24 EB Loop Ramps





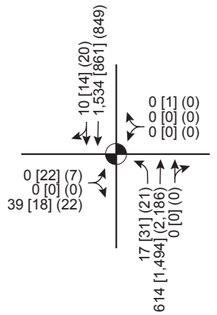
LEGEND	
●	Study Intersection
---	Future Driveway
XX	AM Peak Hour Volume
[XX]	School PM Peak Hour Volume
(XX)	PM Peak Hour Volume

City of Lafayette - The Terraces of Lafayette EIR

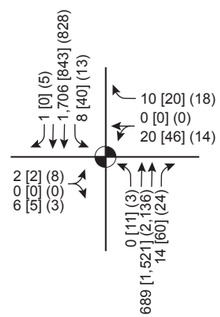
Existing plus Project Traffic Volumes, Lane Geometry, and Controls

Figure 5

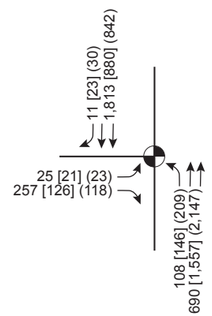
Intersection #1
Pleasant Hill Rd./Rancho View Dr.



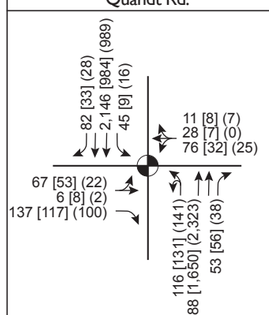
Intersection #2
Pleasant Hill Rd./Green Valley Dr.



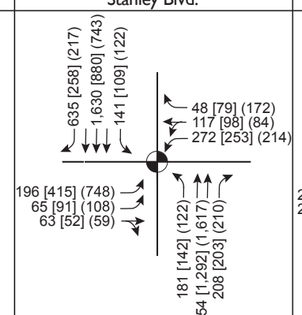
Intersection #3
Pleasant Hill Rd./Reliez Valley Rd.



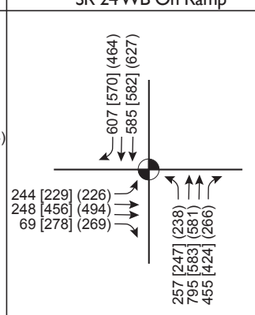
Intersection #4
Pleasant Hill Rd./Springhill Rd./ Quandt Rd.



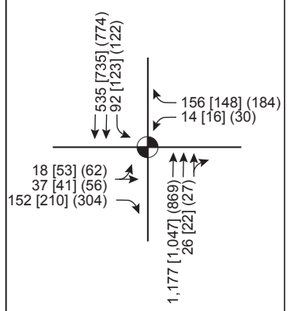
Intersection #5
Pleasant Hill Rd./Deer Hill Rd./ Stanley Blvd.



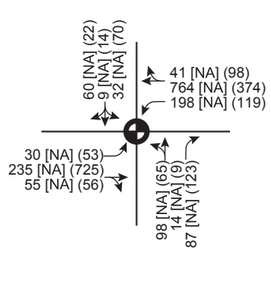
Intersection #6
Pleasant Hill Rd./Mt. Diablo Blvd./ SR 24 WB On Ramp



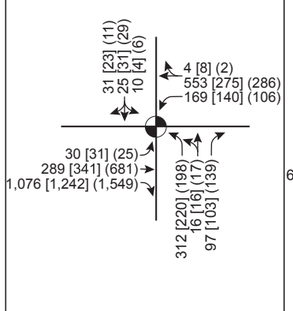
Intersection #7
Pleasant Hill Rd./Old Tunnel Rd./ SR 24 EB Off Ramp



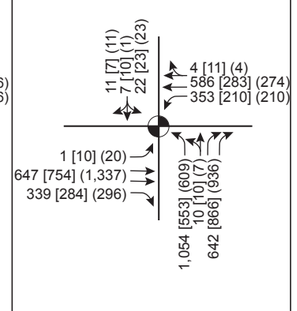
Intersection #8
Brown Ave./Deer Hill Rd.



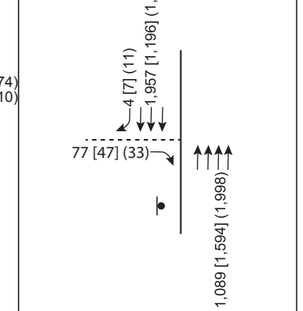
Intersection #9
First St./Sierra Vista Wy./Deer Hill Rd.



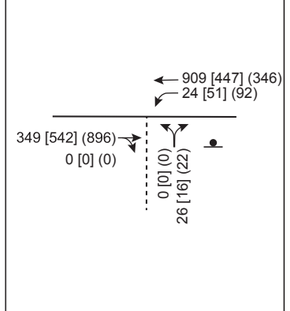
Intersection #10
SR 24 WB Ramps/Laurel Dr./ Deer Hill Rd.



Intersection #11
Pleasant Hill Rd./Project Dwy.



Intersection #12
Deer Hill Rd./East Project Dwy.



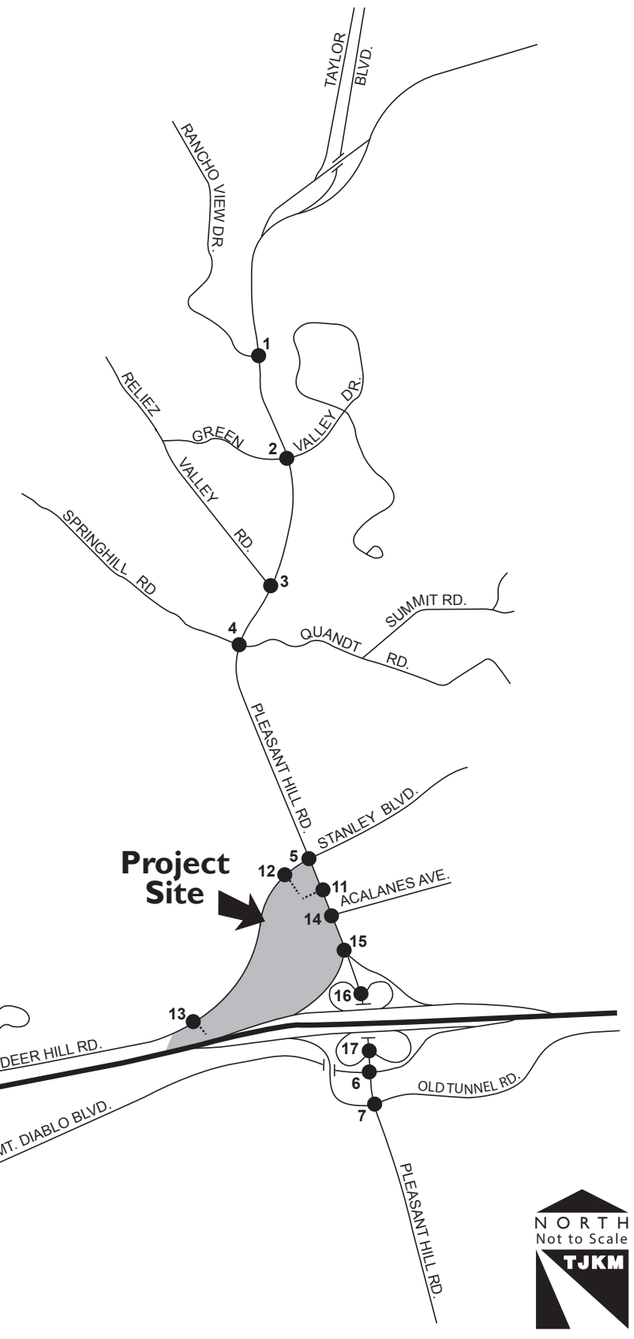
Intersection #13
Deer Hill Rd./West Project Dwy.

Intersection #14
Pleasant Hill Rd./Acalanes Ave.

Intersection #15
Pleasant Hill Rd./ SR 24 WB Direct Ramps

Intersection #16
Pleasant Hill Rd./ SR 24 WB Loop Ramps

Intersection #17
Pleasant Hill Rd./ SR 24 EB Loop Ramps



LEGEND

- Study Intersection
- Traffic Signal
- Stop Sign
- Future Driveway
- XX AM Peak Hour Volume
- [XX] School PM Peak Hour Volume
- (XX) PM Peak Hour Volume
- Mitigated Lane
- Mitigated Traffic Signal

007-035

Intersection Level of Service Analysis Results, Existing plus Project Conditions
Table VI illustrates the results of the level of service analysis for the study intersections under Existing plus Project Conditions. Detailed level of service calculations are contained in Appendix D.

Table VI: Peak Hour Intersection Levels of Service – Existing plus Project Conditions

ID	Intersection	Existing Plus Project Conditions					
		A.M. Peak Hour		School P.M. Peak Hour		P.M. Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS
1	Rancho View Drive/Pleasant Hill Road	23.8	C	11.2	B	11.0	B
2	Green Valley Drive/Pleasant Hill Road	2.8	A	6.8	A	5.1	A
3	Reliez Valley Road/Pleasant Hill Road	12.4	B	9.9	A	6.5	A
4	Springhill Road – Quandt Road/ Pleasant Hill Road	42.1	D	8.7	A	9.7	A
5	Deer Hill Road – Stanley Blvd./ Pleasant Hill Road	**127.9**	**F**	**49.6**	**D**	**77.8**	**E**
6	Mt. Diablo Boulevard – SR 24 EB On-ramp/Pleasant Hill Road	15.9	B	21.0	C	31.6	C
7	SR 24 EB Off-Ramp – Old Tunnel Road/Pleasant Hill Road	8.5	A	9.6	A	10.8	B
8	Deer Hill Road/Brown Avenue	**421.6**	**F**	-	-	**853.4**	**F**
	Mitigation – Signalize Intersection	*6.8*	*A*	-	-	*7.5*	A
	Mitigation – Roundabout	*19.3*	*C*	-	-	*27.6*	D
9	Deer Hill Road/First Street – Sierra Vista Way	18.8	B	18.1	B	20.1	C
10	Deer Hill Road/SR 24 WB Ramps – Laurel Drive	**71.5**	**E**	39.1	D	**69.1**	**E**
11	Pleasant Hill Road/Project Driveway	11.5	B	11.9	B	9.0	A
12	Deer Hill Road/East Project Driveway	10.6	B	12.3	B	17.8	C
13	Deer Hill Road/ West Project Driveway	31.4	D	20.9	C	29.0	D

Notes: 1) LOS=Level of Service, Delay = Average control delay per vehicle in seconds
2) Signalized and all-way stop controlled intersections - Delay / LOS is for overall intersection
3) Unsignalized one- and two-way stop controlled intersections - Delay / LOS is for critical minor stop-controlled approach.
4) **Bold** indicates unacceptable operational conditions based on applicable City standards.
5) "Good" LOS D is defined as 35 to 45 seconds of average control delay per vehicle. "Poor" LOS D is defined as 45 to 55 seconds of average delay.
6) NA=Not analyzed. At intersection #8, a.m. and p.m. commute peaks provide worst-case results.

Under Existing plus Project Conditions with the addition of proposed Project traffic, all signalized intersections are expected to continue operating under acceptable City LOS standards, except the two intersections that already operate at an unacceptable LOS under Existing Conditions:

- Deer Hill Road – Stanley Blvd./Pleasant Hill Road: LOS F during the a.m. peak hour, with delay decreasing by 56.5 seconds as a result of the Project ; poor LOS D during the school p.m. peak hour with delay increasing by 0.3 seconds; and LOS E during the p.m. peak hour with delay increasing by 0.4 seconds. The Project would increase delay by less than five

seconds at an intersection operating below the acceptable standard, resulting in a *less-than-significant impact*.

- Deer Hill Road/SR 24 Westbound Ramps – Laurel Drive: LOS E during the a.m. and p.m. peak hours, with delay decreasing by 0.3 seconds in the a.m. peak hour and increasing by 1.5 seconds in the p.m. peak hour. Because the Project would increase delay by less than five seconds, the result would be a *less-than-significant impact*.

The unsignalized Project driveway intersections would operate at an acceptable good LOS D or better. However, at the only Existing unsignalized study intersection, the northbound and southbound stop-controlled minor approaches on Brown Avenue at Deer Hill Road would continue operating at an unacceptable LOS F during the a.m. and p.m. peak hours, with delay increases substantially higher than five seconds. The California Manual on Uniform Traffic Control Devices (MUTCD) peak hour traffic signal warrant would be met for both peak hours under both Existing and Existing plus Project conditions. The Project would increase delay by more than five seconds at an intersection operating below the acceptable standard, resulting in a *significant impact*.

Intersection Mitigation

To mitigate the impact at the Deer Hill Road/Brown Avenue intersection, the Project sponsor shall coordinate with the City to contribute a proportionate "fair share" of the cost, including an in-lieu payment, to install either a traffic signal or roundabout, which will be added to the City's Capital Improvement Projects (CIP) program. With signalization, the intersection would operate at LOS A during the a.m. and p.m. peak hours under Existing plus Project conditions. With a roundabout, the intersection would operate at LOS C during the a.m. peak hour and LOS D during the p.m. peak hour under Existing plus Project Conditions. Both mitigation alternatives would reduce the Project impact to *less-than-significant*.

Left-Turn Queues at Project Driveways

Left-turn queue lengths on northbound Pleasant Hill Road at Deer Hill Road, as well as on westbound Deer Hill Road at two Project driveways, were also analyzed using SimTraffic results for Existing plus Project conditions in the a.m., school p.m., and commute p.m. peak hours. The resulting 95th-percentile queue lengths were compared with the left-turn storage lane lengths that would be provided at these intersections to determine if that queue storage capacity would be adequate to avoid spillback into other lanes. The Existing plus Project results are summarized as follows:

- Westbound Deer Hill Road at Project Driveways: The estimated 95th-percentile left-turn queue lengths during the a.m. peak hour would be no more than one car length at either driveway. During the school p.m. and p.m. peak periods, eastbound queuing backing up from the Deer Hill Road – Stanley Blvd./Pleasant Hill Road intersection would occasionally prevent westbound vehicles from turning left into the eastern Project driveway, generating minor queues that would be fully accommodated in the proposed left turn lane. Therefore, the impact at the east driveway would be *less than significant*.
- At the west Project driveway on Deer Hill Road, where a minimal number of left turns into the Project are expected, no storage lane is proposed in the Project plans; the safety aspects of this condition are addressed in a subsequent section of this report. TJKM recommends restricting left turns into the Project driveway by westbound traffic.

Pleasant Hill Road Corridor Traffic Simulation

SimTraffic simulation results for Existing plus Project conditions were reviewed to supplement the intersection LOS results. During the a.m. peak hour, traffic on southbound Pleasant Hill Road that

backs up from the intersection at Deer Hill Road – Stanley Boulevard would extend the existing queue further past the intersection at Green Valley Drive with the addition of Project traffic. In effect, as described for Existing conditions, the LOS F conditions at the Deer Hill Road – Stanley Boulevard intersection would also occur upstream at the Springhill Road/Quandt Road, Reliez Valley Road, and Green Valley Drive intersections, which impacts southbound Pleasant Hill Road traffic and other traffic movements that conflict with southbound traffic at each intersection. However, the City's intersection LOS standards described in the previous Level of Service Analysis Methodology section are based on the LOS results calculated at each intersection individually, which are the results shown in Table VI.

Segment Speeds

TJKM evaluated the proposed additional southbound lane on Pleasant Hill Road to identify potential impacts between Deer Hill Road/Stanley Blvd. and the westbound SR-24 on-ramp as a result of the proposed changes to Pleasant Hill Road. Right turns out of the Project driveway into the additional southbound lane would be entering a right-turn-only lane for the on-ramp to westbound SR 24. As shown in Figure 4, most of these Project trips would merge left to continue further south on Pleasant Hill Road rather than use the westbound SR 24 on-ramp, which would introduce a weaving movement on southbound Pleasant Hill Road between the Project driveway and the on-ramp.

SimTraffic analysis was performed for this roadway segment to compare traffic speeds for updated Existing conditions to Existing plus Project conditions with the additional southbound lane As shown in Table VII below, the additional southbound lane for Existing plus Project Conditions would increase average peak hour speeds by 37 percent in the a.m. peak hour, 47 percent in the school p.m. peak hour, and 25 percent in the p.m. peak hour, compared to Existing conditions.

On northbound Pleasant Hill Road, the addition of Project traffic would increase average speed by 21 percent in the a.m. and school p.m. peak hours and reduce average speed by 43 percent in the p.m. peak hour. This reduction is largely due to the existing persistent northbound queuing at Deer Hill Road/Stanley Boulevard. As the Project does not add any northbound weaving operations on this segment, a reduction in travel speed does not reflect unsafe weaving conditions. Therefore, the Project would have a *less than significant* impact on traffic safety.

Table VII: Southbound Pleasant Hill Road Segment Speeds

Segment	*Peak Hour*	*Average Speeds (mph)*		*Speed Change*	*Speed Change Percentage*
		Existing	*Existing plus Project*		
Northbound Pleasant Hill Road between Acalanes Drive and Deer Hill Road/Stanley Boulevard	A.M.	9	17.5	9	21%
	School P.M.	14.5	17.5	3	21%
	P.M.	11.5	6.5	-5	-43%
Southbound Pleasant Hill Road between Project Driveway and SR 24 WB on-ramp	A.M.	23	31.5	8.5	37%
	School P.M.	21.5	31.5	10	47%
	P.M.	25.5	32	6.5	25%

Note: Average speeds are SimTraffic simulation model results.

During the p.m. peak hour on northbound Pleasant Hill Road, most drivers will make a left or U-turn at the Deer Hill Road signal to access the Project site. Some drivers may instead try the alternative of turning right on Acalanes Avenue and then using Nogales Street, Camino Diablo, and westbound Stanley Boulevard to get back to the signal at Pleasant Hill Road, where they would make a left turn or continue straight onto Deer Hill Road to access the Project site. However, a typical travel time along this route, including the average delay of approximately one minute on westbound Stanley Boulevard at the Pleasant Hill Road signal, would be longer than the average delay for drivers continuing northbound on Pleasant Hill Road to make a left or U-turn at Deer Hill Road. Drivers attempting this route would quickly recognize its longer travel time and learn to avoid it.

Project Driveway Sight-Distance and Safety

TJKM analyzed the sight-distance parameters at the proposed Project driveway locations on Pleasant Hill Road and Deer Hill Road, based on the September 21, 2011 site plans attached in Appendix A and found in Figure 6 and Figure 7. Figure 2 shows the updated December 13, 2018 site plan, which incorporates environmentally beneficial refinements that eliminate deficiencies identified in the 2011 site plan. The prior analysis conducted in 2012 has been included in full for consistency with the original traffic and circulation study.

At the Pleasant Hill Road driveway, proposed access is limited to right turns to and from the southbound lanes only. Left turns in and out of the site onto Pleasant Hill Road would be prohibited by a raised median. With this configuration, turning movements at the driveway would conflict with only southbound Pleasant Hill Road traffic. Visibility of the driveway along southbound Pleasant Hill Road is unobstructed for at least 750 feet, providing more than adequate sight-distance. In addition, the driveway would be located approximately 325 feet south (measured from the south side) of the intersection at Deer Hill Road – Stanley Boulevard, providing more than adequate sight-distance for vehicles turning onto southbound Pleasant Hill Road.

Sight-distance analysis at the two proposed Deer Hill Road driveway locations accounted for the visibility obstructions presented by the horizontal and vertical curvature of the roadway and roadside features such as adjacent hillsides and vegetation, as well as the effect of steep grades on prevailing vehicle speeds. At the request of TJKM and City staff, the Project applicant's engineering team marked the proposed driveway locations in the field to facilitate sight-distance measurements. TJKM and City Engineering staff's traffic engineering consultant met with the Project applicant's engineering team at the site to identify the critical limitation points for available sight-distance in each direction on Deer Hill Road at both proposed driveway locations. The critical limitation points for sight-distance are the locations where driveway visibility would no longer be obstructed for vehicles approaching on Deer Hill Road. For example, on westbound Deer Hill Road approaching the west Project driveway, the critical limitation point for visibility is just west and downhill from the crest of the hill east of the driveway, as shown on Figure 6

City Engineering staff confirmed that observed 85th-percentile speeds on Deer Hill Road would be used to determine the required sight-distance at the proposed driveway locations. Speed data was collected at several locations on Deer Hill Road when local schools were in regular session, including the relevant critical limitation points for available sight-distance. Caltrans *Highway Design Manual* standards for stopping sight-distance based on speed were used to determine the required sight-distance at both driveways for the observed 85th-percentile speed in each direction at the critical limitation points.

Table VIII shows the results of the sight-distance analysis for the proposed Deer Hill Road driveway locations.

Table VIII: Deer Hill Road Project Driveway Sight-Distance

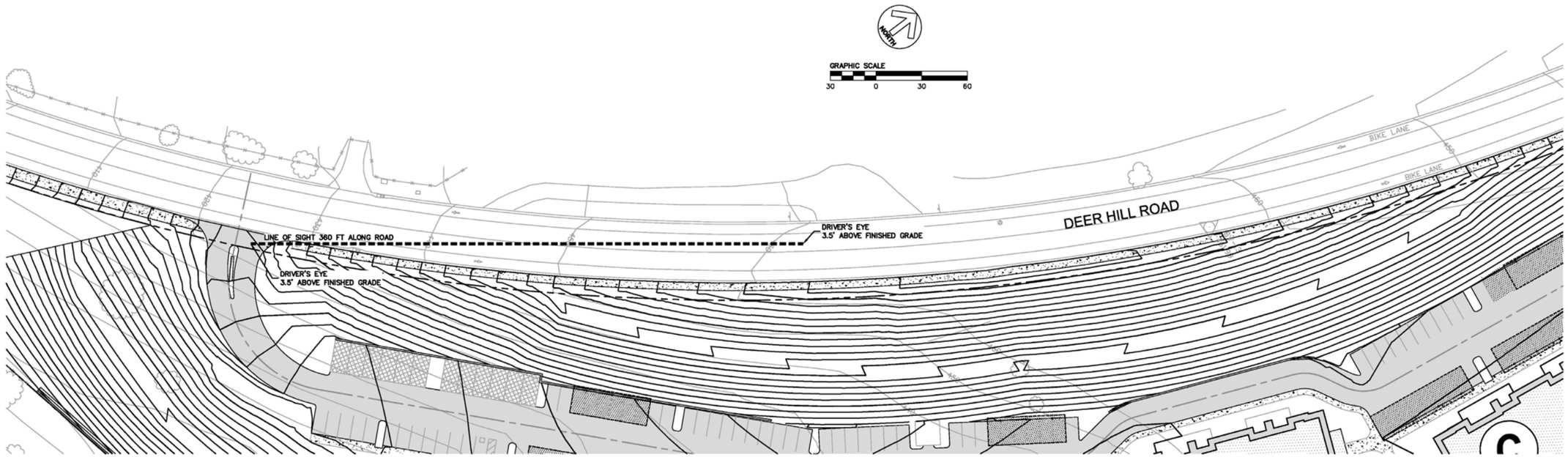
Driveway	*Approach Direction*	*85th-Percentile Speed (mph)*	*Required Sight-Distance (feet)*	*Available Sight-Distance (feet)*	*Meets Standard?*
West	Eastbound	56	516	>525	Yes
	Westbound	44	350	<300	**No**
East	Eastbound	38	300	360[1]	Yes[1]
	Westbound	<40	<300	>300[2]	Yes

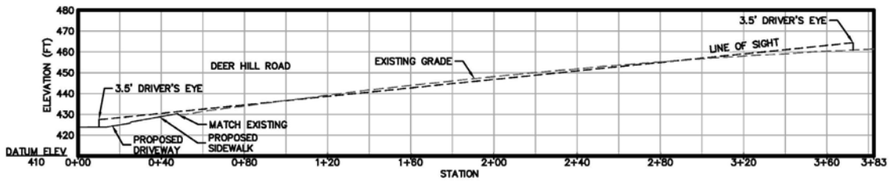
1. Assumes vegetation in creek bed will be trimmed as needed to maintain sight-distance.
2. At east driveway, available sight-distance is for westbound through traffic from Stanley Blvd. See text description.

As shown in the table, visibility of the east driveway for westbound traffic from Stanley Boulevard continuing through onto Deer Hill Road provides more than adequate sight-distance. In addition, the driveway would be located approximately 225 feet west (measured from the west side) of the intersection at Pleasant Hill Road, providing adequate sight-distance for the lower speeds of vehicles turning onto westbound Deer Hill Road.

The field review of the east driveway location indicated adequate sight-distance for eastbound Deer Hill Road traffic visibility of all turning movements at the driveway, including westbound left turns into the driveway. However, at the time of year observed, some trees or brush in the creek bed west of the driveway did not have foliage, and the understory area of trees further west up the hill was also relatively clear. As shown in Figure 7, when foliage grows on the higher branches of some trees or brush in the portion of the creek bed closest to Deer Hill Road, or in the understory of trees further west up the hill, it could obstruct visibility and significantly reduce the available sight-distance at the east driveway for eastbound traffic. Lower branches and vegetation in the creek bed are not an issue because the higher elevation of Deer Hill Road west of the creek bed provides a line of sight over the top of such plant material between eastbound traffic and the east driveway. This sight-distance analysis applies to all turning movements at the east driveway, but sight-distance for westbound left turns into the driveway would be slightly better because their line of sight near the roadway centerline is not restricted quite as much by the potential vegetation obstructions.

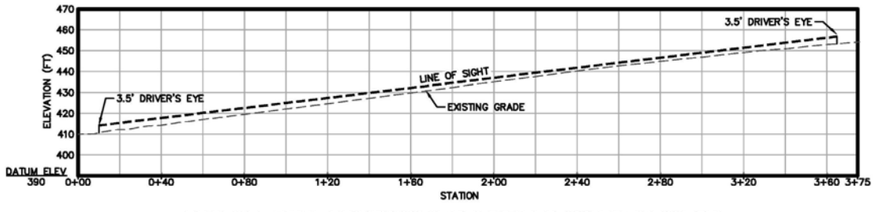
As shown in Table VIII and Figure 6, sight-distance at the west Project driveway would be inadequate for westbound traffic on Deer Hill Road. As shown in Figure 2, the updated site plan moves the west Project driveway on Deer Hill Road at least 100 feet to the west of the location shown on the 2012 Project plans. Relocation of the driveway would allow for adequate sight distance.





PROFILE - WEST DRIVEWAY

SCALE V: 1"=30'
H: 1"=30'



PROFILE - WEST DRIVEWAY (IF RELOCATED 100' TO THE WEST)

SCALE V: 1"=30'
H: 1"=30'

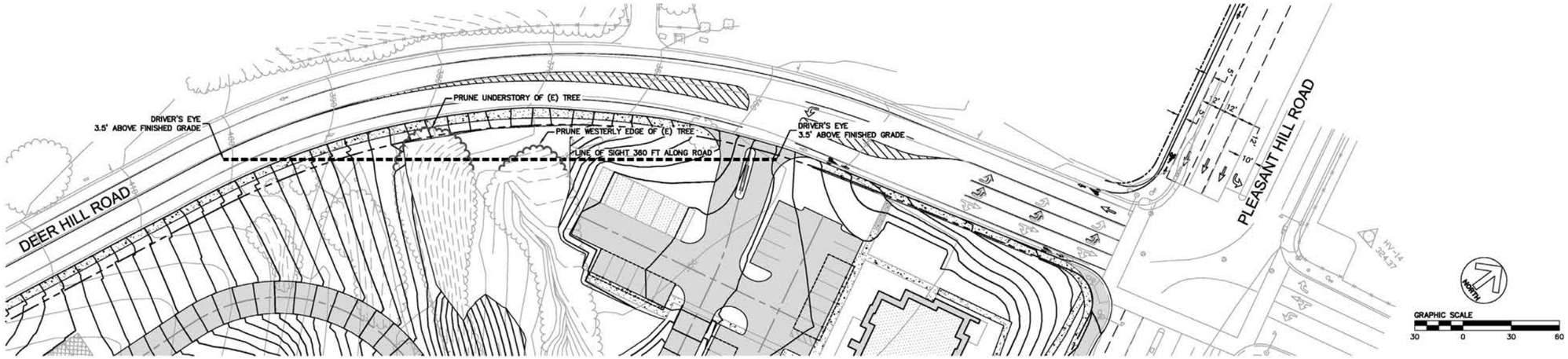
MITIGATION OPTIONS
1. RELOCATE PROPOSED DRIVEWAY WEST ALONG DEER HILL ROAD.
2. PROVIDE WESTBOUND ACCELERATION LANE.

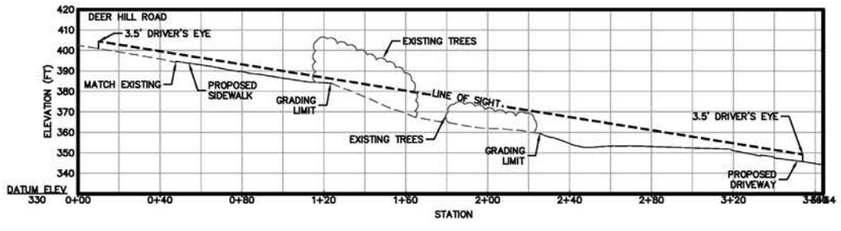
SIGHT DISTANCE EXHIBIT - DEER HILL ROAD

THE TERRACES OF LAFAYETTE
LAFAYETTE, CA
3/8/2012

BkF
ENGINEERS / SURVEYORS / PLANNERS
1646 N CALIFORNIA BLVD
SUITE 400
WALNUT CREEK, CA 94596
925-940-2200
925-940-2299 (FAX)

NORTH
Not to Scale
TJKM





PROFILE - EAST DRIVEWAY
SCALE V: 1"=30'
H: 1"=30'

MITIGATION OPTION
TREES AND FOLIAGE TO BE TRIMMED AND MAINTAINED TO PROVIDE ADEQUATE LINE OF SIGHT.

SIGHT DISTANCE EXHIBIT - DEER HILL ROAD

THE TERRACES OF LAFAYETTE
LAFAYETTE, CA
3/8/2012

BkF
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925-940-2299 (FAX)

NORTH
Not to Scale
TJKM

The previous Project site plans (dated September 21, 2011) also proposed significant additional landscaping along Deer Hill Road and Pleasant Hill Road, as well as entry monument signs and other vertical features near those roadways at all three Project driveways, which would be in the line of sight of traffic approaching each driveway. These Project design features presented a higher potential for inadequate sight-distance west of the east driveway on Deer Hill Road because of the roadway curvature.

Environmentally-beneficial refinements were incorporated in the updated site plan (Figure 2). Design refinements incorporated into the December 13, 2018 site plan reflect the following:

- *West of the East Driveway on Deer Hill Road*: All landscaping along the south side of Deer Hill Road that is located in the line of sight for eastbound traffic within 360 feet west of the east Project driveway should be limited to plants with foliage no more than 30 inches fully mature height above the closest adjacent curb elevation, or trees with canopy foliage no less than seven feet above the closest adjacent curb elevation, or other dimensions as specified by the City Engineer. The line of sight is defined as the area between the south curb on Deer Hill Road and a straight line connecting a point 10 feet behind the back of the sidewalk on the centerline of the east driveway and a point 360 feet to the west where it intersects the south curb line, or as otherwise specified by the City Engineer.
- *All other Project Driveways*: All landscaping along the Project street frontage that is located in the line of sight of traffic approaching Project driveways in either direction shall be limited to plants with foliage no more than 30 inches fully mature height above the closest adjacent curb elevation, or trees with canopy foliage no less than seven feet above the closest adjacent curb elevation, or other dimensions as specified by the City Engineer. The line of sight is defined as an area within 10 feet behind the back of the sidewalk or shared-use path and within 50 feet of the driveway edge, or as otherwise specified by the City Engineer.
- *Monument Signs, etc.*: All monument signs, walls, slopes and other vertical features that could otherwise block visibility shall be no more than three feet higher than the adjacent driveway elevation in the area within 15 feet behind the back of the sidewalk or shared-use path and within 50 feet of the driveway edge, or as otherwise specified by the City Engineer.

Although the west driveway location would provide adequate sight-distance for westbound traffic on Deer Hill Road, westbound speeds increase as vehicles descend the hill, and vehicles slowing or stopping in the westbound through lane before turning left into the driveway would present potential safety issues. TJKM recommends the addition of signs prohibiting left turns from westbound Deer Hill Road into the west driveway. In the mouth of the driveway on the south side of Deer Hill Road, a raised island designed to physically obstruct left turns into the driveway should be constructed, if emergency access can be maintained to the satisfaction of the Contra Costa County Fire Prevention District and the eastbound bike lane is not obstructed. Raised centerline or median features to obstruct the westbound left turn are not recommended on Deer Hill Road at this location because of prevailing speeds, as well as potential obstruction of left turns out of the Project driveway and access at the adjacent driveway on the north side of the roadway.

Transit Facilities

Potential Project impacts on public transit systems in Lafayette, including both local bus and Bay Area Rapid Transit (BART) regional rail service, are described below. The Project would potentially increase ridership on these systems, particularly during commute peak hours. Note that regardless of the estimated potential number of transit trips generated by the Project that is described below, no vehicle-trip reductions were assumed in the traffic analyses presented in this report because the

Project site is not within reasonable walking distance of significant public transit services, based on published research data. "Reasonable walking distance" in the published data is typically considered to range from at least ¼-mile to ½-mile.

Survey data from the 2010 Census for Lafayette residents citywide indicates that approximately 12 percent use of transit for commuting. Assuming that 12 percent of the commute peak-hour Project trip generation shown in Table V would use transit, the Project would add 19 transit trips during the a.m. peak hour and 23 transit trips during the p.m. peak hour.

BART

The 2015 BART Station Profile Study and online BART ridership figures for 2018 were reviewed for the available ridership data to determine the potential impacts of the proposed Project on BART. Based on the BART data sources, average weekday passenger entries and exits at the Lafayette BART Station totaled approximately 6,990 trips (3,464 entries, 3,522 exits) in July 2018.

Using a conservative assumption that all of the expected peak-hour transit trip generation from the Project would use BART in the peak-hour peak direction, it is estimated that the Project would generate 19 new BART Station passenger entries during the a.m. peak hour and 23 new passengers exiting during the p.m. peak hour. These Project-generated BART trips would add approximately 2.2 percent to existing average weekday peak period ridership entering and exiting at the Lafayette station. Table IX shows the results of the Project-added BART trip share analysis.

Table IX: Estimated Project-Added Trips at Lafayette BART Station

	Existing Average Weekday BART Trips	*Project-Added BART Trips*	*% Increase*
AM Peak Hour	947	19	2.0%
PM Peak Hour	951	23	2.4%
Combined Peaks	1,898	42	2.2%

Source: Based on BART ridership data (2018),

One of the two thresholds that must both be met to result in a significant impact on BART is an increase in peak hour ridership of more than 3 percent. The Project is expected to increase the peak hour average ridership at the Lafayette BART Station by less than three percent during peak hours. The other threshold is peak hour average waiting time at fare gates that would exceed one minute. Based on observations by TJKM at the Lafayette BART station in 2012, the peak hour average waiting time at fare gates is less than 15 seconds, including the worst-case p.m. peak hour when passengers exit in large groups from arriving trains. The 23 new p.m. peak hour BART passengers added by the Project, who would be distributed among ten eastbound (p.m. peak direction) and six westbound (p.m. off-peak direction) arriving trains, are not expected to increase the average waiting at fare gates to more than one minute. Because the peak hour average waiting time at the Lafayette BART Station fare gates is not expected to exceed one minute with the Project, the result would be a *less-than-significant impact.*

The BART website reports that all parking spaces at the Lafayette BART Station typically fill up by 7:00 a.m. on weekdays. Based on observations conducted in October 2011, parking spaces fill up later on Fridays when parking demand is lower than on other days. Based on the previously cited Census data on transit use by Lafayette resident commuters and the Project-generated peak one-hour BART trips shown in Table IX, TJKM estimates that the Project would generate additional weekday parking demand for up to 50 spaces, which is approximately three percent of the 1,529

spaces in the lot. Because the parking lot demand already exceeds capacity on weekdays, the Project would create demand for a public transit facility above that which is provided, resulting in a *significant impact.*

To mitigate this impact, TJKM recommends the following measure:

- The Project sponsor shall provide subsidized, frequent shuttle service between the Project site and the Lafayette BART station during the a.m. and p.m. peak commute periods, until such time that a bus route on Pleasant Hill Road serving the BART station is implemented as called for in the Lamorinda Action Plan, at which point the Project sponsor could provide transit vouchers in lieu of a shuttle.

Implementation of this measure would result in a *less-than-significant impact.*

Bus Transit

The ridership data presented in the 2016 Central Contra Costa County Transportation Authority (County Connection, or CCCTA) Short Range Transit Plan (SRTP), 2015 BART Station Profile Study and online BART ridership figures were reviewed to estimate the portion of transit riders generated by the Project that are expected to use County Connection's Route 25 bus line. Average weekday passenger entries and exits at the Lafayette BART Station were compared with the number of average weekday riders on all fixed-route County Connection services in Lafayette. These fixed routes in Lafayette consist of route 6, route 25, and routes serving schools in the Acalanas & Orinda and Lafayette School Districts. Based on the relative proportions of average weekday transit ridership of BART and County Connection, BART comprises 87 percent of this ridership in Lafayette, with County Connection riders comprising the remaining 13 percent. This County Connection rider percentage was applied to the Project-generated transit trips described previously to determine the potential impacts to County Connection bus service.

Route 25 is the only fixed-route bus line with stops within reasonable walking distance of the Project site. It was conservatively assumed that all bus trips generated by the Project would utilize this route. According to the CCCTA FY 2017 Comprehensive Operations Analysis, Route 25 had an average weekday ridership of approximately 66 passengers per day. The Project is expected to add two to three trips to this route for the a.m. peak hour and three trips for the p.m. peak hour. The County Connection ridership data indicates that this route currently operates well below capacity during peak periods. The addition of three trips during any peak hour would not be significant so as to increase the load factor above 1.0 (seats full).

Route 625 is the County Connection bus route service for Acalanes High School students, with one bus arriving before school in the morning and one bus leaving after school in the afternoon using streets near the Project site to access the bus stop on the north side of Stanley Boulevard. Because Project residents attending Acalanes High School could easily walk or bike to the campus across the street from the site, the Project would not add riders to Route 625.

No existing bus stops are located on the Project site's street frontage, and the only existing bus route that runs along the Project frontage is Route 625 with two bus trips per school day passing by on southbound Pleasant Hill Road. Therefore, the Project impact on existing County Connection bus service and facilities would be *less than significant.*

The Lamorinda Action Plan (completed September 2017) includes a Multimodal Transportation Service Objective (MTSO) for Pleasant Hill Road to "Establish CCCTA bus service on Pleasant Hill

Road and/or Taylor Boulevard that has a composite frequency of at least two buses per hour during peak commute and school times (6:30 – 9:30 a.m. and 3:30 – 6:30 p.m.) and direct connection to the Lafayette BART station." It also includes as an Action for Pleasant Hill Road, "support the provision of" such service, for which the City of Lafayette is identified as the responsible party. If implemented, such future bus service would likely attract riders from the Project and Acalanes High School, and include a new bus stop along the Project frontage on Pleasant Hill Road and/or Deer Hill Road near the intersection of those roadways. However, neither CCCTA nor the City has adopted specific plans or identified funding for implementation of such new bus service on Pleasant Hill Road. Additionally, possible bus stop locations might be on either Pleasant Hill Road or Deer Hill Road along the Project frontage, depending on which of those roadways would be on the bus route eventually selected to provide the "direct connection to the Lafayette BART station" specified in the Lamorinda Action Plan. If a future bus route includes southbound Pleasant Hill Road along the Project frontage, a bus stop could be accommodated at the passenger loading zone along the west curb south of Deer Hill Road described subsequently in the Pedestrian Facilities section. Because no specific plan or funding has been identified for the bus service and the locations of bus stops are not yet determined, the result is a *less-than-significant* impact.

Other Local Transit Services

Lamorinda School Bus Program

With the addition of residential units in the Lafayette School District, the Project has the potential to add to the rider demand for the Lamorinda School Bus Program. The program includes service to Stanley Middle School and Springhill and Burton Valley Elementary Schools. The Project is expected to generate approximately 63 middle school and 63 elementary school grade students. Most of the Project/s elementary school students are expected to attend Springhill Elementary School, and the bus program would not be available to them because the school is located within walking distance approximately one-half mile north of the Project site. For the Project's assumed 63 Stanley Middle School students, applying the current 20 percent ratio of bus program annual passes for the Stanley Routes vs. total Stanley Middle School enrollment would result in approximately 13 additional riders on the bus program's Stanley Routes.

Previously, the Lamorinda School Bus Program Manager[1] indicated that up to 30 additional riders could be accommodated on the Stanley Routes, although possible funding issues could affect future service capacity. Participation in the program requires Lamorinda parents to submit an application for their children to be added to the school bus service and to prepay for that service for the school year. These annual passes fund approximately one-third of the program budget, with Measure J County sales tax allocations funding most of the remainder. Because additional seat capacity is available and parents would pay a significant amount of the program cost if they choose to subscribe, the additional ridership demand from the Project is expected to have minor effects that the Lamorinda School bus program can accommodate.

However, accommodations for the forty-foot buses to stop for passenger loading and unloading at locations reasonably convenient to the Project site will be needed. These school buses must be able to pull off to the side of the road completely out of traffic lanes for passenger loading activity, or else they must activate flashing red lights requiring all traffic on the adjacent roadway to stop. Morning buses to Stanley Middle School would arrive at the Project site on southbound Pleasant Hill Road, and afternoon buses would arrive on northbound Pleasant Hill. Northbound Pleasant

[1] Hansen, Juliet. Program Manager, Lamorinda School Bus Program. Personal communication with Rich Haygood, TJKM. February 2012.

Hill Road across from the Project site does not have room for a bus to pull out of traffic lanes, and the 2011 Project site plans did not propose such accommodation along the site frontage on southbound Pleasant Hill Road. Because peak hour traffic congestion on those roadways would be exacerbated if all traffic is required to stop for a school bus in the traffic lane, TJKM recommends the following measure:

- The Project sponsor should coordinate with the Lamorinda School Bus Program to determine the appropriate locations and designs for bus stop pullouts along the Project frontage, which the Project sponsor shall construct as part of the site frontage improvements.

Figure 2 shows the proposed location of a passenger loading/bus zone on Pleasant Hill Road just south of Deer Hill Road. This location will be finalized pending coordination with the Lamorinda School Bus Program.

City of Lafayette Spirit Van
With the addition of residential units within Lafayette, the Project has the potential to add senior residents to the rider demand for the Spirit Van program. Because precise senior resident numbers are not yet known for the Project, it is speculative to quantify the potential impacts to the Spirit Van service that would result from additional riders.

Pedestrian and Bicycle Facilities

Pedestrian Facilities

The Project site plans (dated December 13, 2018) proposes constructing a five-foot wide sidewalk along the Project site frontage on the south side of Deer Hill Road and a multi-use trail on the west side of Pleasant Hill Road extending south to conform with existing sidewalk near the on-ramp to westbound SR 24. The added sidewalk on the west side of Pleasant Hill Road from SR 24 to Deer Hill Road would provide a portion of the walkway specified for completion in the City's Master Walkways Plan. Although the Master Walkways plan specifies adding a walkway on the north side of Deer Hill Road, the proposed sidewalk on the south side would improve pedestrian access for the public as well as Project residents.

However, the proposed five-foot sidewalk widths shown on the 2011 site plans are not consistent with the six-foot widths of most existing sidewalks on Pleasant Hill Road and Stanley Boulevard in the immediate vicinity or the walkway widths required by the City in recent project approvals. Because the 2011 Project plans proposed narrower sidewalks than those existing in the immediate vicinity, those recently approved by the City on arterial roadways, and those anticipated along the Project frontage on Pleasant Hill Road, the original plans were inconsistent with City guidelines for pedestrian facilities. As shown in Figure 2, environmentally-beneficial site plan refinements incorporated into the December 13, 2018 plans include the following measures:

- On the south side of Deer Hill Road along the Project site frontage, construct new sidewalk and curb at a width of at least 6.5 feet, or as otherwise specified by the City Engineer.
- On the west side of Pleasant Hill Road along the Project site frontage, construct a new Class I shared path for bicycles and pedestrians at a paved width of ten feet with a buffer strip at least four feet wide between the path and the curb, or as otherwise specified by the City Engineer. The buffer strip's surface treatment shall be appropriate to accommodate pedestrians accessing vehicles at curb parking and passenger loading areas. At the southwest corner of Pleasant Hill Road and Deer Hill Road, the path should be designed to

accommodate expected volumes of pedestrians and bicyclists waiting for the traffic signal. This path would be in addition to other improvements recommended in the Bicycle Facilities and Street Parking and Passenger Loading Areas sections below.

Project driveways on Deer Hill Road and Pleasant Hill Road would interrupt the new sidewalks and present conflicting vehicle traffic for pedestrians. As shown in Figure 2, environmentally-beneficial site plan refinements include the following measures:

- Implement the driveway sight-distance recommendations included in a previous section of this report, which would provide adequate visibility between pedestrians and drivers.
- Install special design treatments such as paving to be specified by the City Engineer to alert drivers exiting the Project site that they are crossing pedestrian and bicycle facilities.

The Project would generate additional pedestrians in the vicinity of the site. The Acalanes Union High School District anticipates that between 53 and 78 additional high school students would be generated from the proposed residential development. Most of these students would be expected to walk to and from the Project site to attend Acalanes High School (AHS), crossing at the signalized Pleasant Hill Road/Deer Hill Road/Stanley Boulevard intersection. The traffic level of service analysis presented in other sections of this report already assumes the maximum condition of pedestrians crossing this intersection on every signal cycle during peak hours, and the additional pedestrians would not affect intersection traffic operations.

The Project-generated pedestrians would likely join the existing large number of AHS pedestrians (nearly 100 each morning) that "jaywalk" across Stanley Boulevard within 100 to 275 feet east of the signalized intersection. Although crossing traffic in this roadway segment is somewhat hazardous, the large numbers of high school age pedestrians crossing mostly during a 20-minute period before and after school every day make them fairly visible to drivers, and accident data reported by SWITRS for a recent four-year period shows no reported accidents involving pedestrians in this area. As suggested previously in the report to address this existing condition, safer pedestrian conditions in this segment might be encouraged by installing a fence or barrier rail along the north curb of Stanley Boulevard between Pleasant Hill Road and the AHS exit driveway approximately 175 feet to the east, and installing a school crosswalk on Stanley Boulevard at that driveway. However, a fence or barrier along the curb could present a safety issue for drivers and a visual impact for the public, and installing an acceptable crosswalk design would be very challenging because of existing driveways and a drainage inlet on the north curb across from the AHS driveway. Because of the nature of this existing condition, additional high school pedestrians generated by the Project would not substantially increase hazards, and the Project impact is considered *less than significant.*
The Project is expected to generate approximately 42 additional elementary school (K-5) students, and most are expected to attend Springhill Elementary School, which is approximately one-half mile north of the Project site on Pleasant Hill Road. A substantial portion of these students could walk this distance to and from Springhill School, accompanied by a parent as appropriate, if a more direct walkway connection was provided. However, no walkway exists on the west side of Pleasant Hill Road between Deer Hill Road and Springhill School. To make this trip on improved walkways, pedestrians must cross Pleasant Hill Road at the Deer Hill Road signal and at the Springhill Road/Quandt Road signal to use the sidewalk on the east side, which has a gap of approximately 500 feet between Quandt Road and Hillview Lane where pedestrians must walk along a narrow residential access roadway. A crossing guard is provided before and after school at the Springhill Road/Quandt Road signal, but not at the Deer Hill Road signal. These existing obstacles are likely to significantly limit the number of Project-generated Springhill students walking to and from school.

The City's Master Walkways Plan includes adding a walkway on the west side of Pleasant Hill Road in this area. The existing topography between Deer Hill Road and Springhill Elementary School includes an area where a steep embankment slopes up immediately adjacent to the roadway, presenting a significant engineering challenge for an acceptable walkway design. Construction of a walkway on a relatively flat area along the top of the embankment approximately 25 feet west of the Pleasant Hill Road curb, with connections to typical curbside elevations at the north and south ends, appears feasible. However, ADA accessibility and acquisition of right-of-way are potential issues.

The Project would contribute to the need for a walkway on the west side of Pleasant Hill Road between Deer Hill Road and Springhill Elementary School, but a safe alternative is provided by the existing sidewalk on the east side, and this condition would not substantially increase hazards or disrupt existing or planned pedestrian facilities. Because this condition does not meet the significant impact criteria based on CEQA guidelines, this Project impact is considered *less than significant*. This finding does not preclude the City from potentially requiring the Project sponsor to contribute toward detailed study and possible construction of a walkway on the west side of Pleasant Hill Road as a condition of Project approval.

Data from the 2010 U.S. Census shows that approximately 1.4 percent of Lafayette residents and 1.6 percent of Contra Costa County residents commuting to work did so by walking. Assuming that 1.5 percent of the commute peak-hour Project trip generation shown in Table V would walk, the Project would generate two to three walking trips during the a.m. peak hour and three walking trips during the p.m. peak hour commuting to and from work. If these additional pedestrians walk to and from the south on Pleasant Hill Road to access employment sites on Mt. Diablo Boulevard, and are added to those expected to walk to and from County Connection bus stops as described in a previous section, the combined total would be approximately five pedestrians in the a.m. peak hour and six in the p.m. peak hour. This number of Project-generated pedestrians would not contribute significantly to the need for pedestrian improvements along Pleasant Hill Road at the uncontrolled SR 24 freeway ramp crossings, and the resulting Project impact on pedestrian facilities would be *less than significant*.

Project-generated vehicle traffic would increase existing traffic volumes on adjacent roadways by the following percentages:

- Pleasant Hill Road south of the Project driveway - less than four percent
- Deer Hill Road west of the Project driveways – less than three percent
- Stanley Boulevard – less than two percent
- Pleasant Hill Road north of Deer Hill Road – approximately one percent

These increases are within the range of typical daily fluctuations in traffic volumes, which can vary by five to ten percent from day to day, and would not significantly impact the pedestrian experience on adjacent sidewalks. Additionally, the two percent increase on Stanley Boulevard would not significantly impact the AHS pedestrian "jaywalking" condition described above. The Project would increase traffic volumes on Deer Hill Road immediately west of Pleasant Hill Road by a somewhat higher percentage, mostly for eastbound traffic. However, the potential impact on pedestrians would be offset by the Project's proposed construction of sidewalk on the south side of Deer Hill Road, adjacent to eastbound traffic. The resulting Project impacts on the pedestrian experience on adjacent sidewalks would be *less than significant*.

Bicycle Facilities

The Project site plans (dated December 13, 2018) propose to add a Class II bike lane along the Project site frontage on the west side of Pleasant Hill Road and extending south to a point near the on-ramp to westbound SR 24. This added bike lane on southbound Pleasant Hill Road from Deer Hill Road to the westbound SR 24 on-ramp would provide a portion of the bike lanes included in the City's Bikeways Master Plan that is currently missing, but a gap would remain between the westbound on-ramp and Mount Diablo Boulevard. To avoid weaving conflicts with vehicles merging onto SR-24, the bike lane should be aligned to the left of any right turn lanes, including the proposed trap lane.

The City's Bikeways Master Plan proposes constructing a Class I (off-street) bicycle path between Pleasant Hill Road and the Brown Avenue/Deer Hill Road intersection on an alignment along the north side of the Caltrans SR 24 right-of-way. The Bikeways Master Plan also proposes extending the Class I bike path easterly of Pleasant Hill Road, and the most recent City discussions propose crossing Pleasant Hill Road at the Deer Hill Road/Stanley Boulevard traffic signal, with an off-street path along the west side of Pleasant Hill Road connecting between the signal and the Caltrans right-of-way. The Project site borders the north side of the Caltrans right-of-way and the west side of Pleasant Hill Road where these bicycle facilities are planned.

The Project site plans do not specify the Caltrans SR 24 right-of-way as a planned bike path, and it cannot be ascertained whether the proposed grading and improvements along the property boundary adjacent to Caltrans right-of-way could preclude reasonable accommodation of the bike path. On the west side of Pleasant Hill Road, the 2011 Project site plans proposed constructing a five-foot wide sidewalk along the Project site frontage, extending south to conform with existing sidewalk near the on-ramp to westbound SR 24. However, the proposed five-foot sidewalk width was not appropriate for the shared bicycle/pedestrian path planned by the City. On Pleasant Hill Road north of Olympic Boulevard, the City recently completed construction of a shared path for pedestrians and bicycles that is ten feet wide with a four- to five-foot wide landscape strip between the path and the roadside curb. The City is also seeking grant funding to conduct a corridor study of Pleasant Hill Road between Mount Diablo Boulevard and Springhill Road to develop a cross section including improved bicycle and pedestrian facilities. This corridor section would be an extension of the improvements to the south on Pleasant Hill Road.

As shown in Figure 2, environmentally-beneficial site plan refinements incorporated into the December 13, 2018 plans include the following measures:

- On the west side of Pleasant Hill Road along the Project site frontage, as described in the previous Pedestrian Facilities section of this report, construct a new Class I shared path for bicycles and pedestrians at a paved width of ten feet with a buffer strip at least four feet wide between the path and the curb, or as otherwise specified by the City Engineer. The buffer strip's surface treatment shall be appropriate to accommodate pedestrians accessing passenger loading areas. At the southwest corner of Pleasant Hill Road and Deer Hill Road, the path shall be designed to accommodate expected volumes of pedestrians and bicyclists waiting for the traffic signal. This path would be in addition to other improvements recommended in the Bicycle Facilities and Street Parking and Passenger Loading Areas sections.
- Where the driveway intersects the bike path, the Project applicant shall ensure adequate sight distance and install special design treatments, such as paving, to be specified by the City Engineer, to alert drivers that they are crossing a bike path.

Data from the 2010 U.S. Census shows approximately 0.72 percent of Lafayette residents and 0.7 percent of Contra Costa County residents commuting to work by bicycle. Assuming that one percent of the commute peak-hour Project trip generation shown in Table V would be bike trips, the Project would generate two bike trips during the a.m. peak hour and two bike trips during the p.m. peak hour commuting to and from work. This number of Project-generated bike trips would not contribute significantly to the need for bicycle facilities, including improvements along Pleasant Hill Road at the uncontrolled SR 24 freeway ramp crossings, and the resulting Project impact on bicycle facilities would be *less than significant.*

Project-generated vehicle traffic would increase existing traffic volumes on adjacent roadways by the following percentages:

- Pleasant Hill Road south of the Project driveway - less than five percent
- Deer Hill Road west of the Project driveways – less than four percent
- Stanley Boulevard - approximately two percent
- Pleasant Hill Road north of Deer Hill Road - less than two percent

These increases are within the range of typical daily fluctuations in traffic volumes, which can vary by five to ten percent from day to day, and would not significantly impact bicyclist operations or safety on adjacent bike lanes or the Bike Boulevard on Stanley Boulevard. The Project would increase traffic volumes on Deer Hill Road immediately west of Pleasant Hill Road by a somewhat higher percentage, mostly for eastbound traffic. However, the potential impact on bicyclists would be offset by the Project's proposed construction of sidewalk on the south side of Deer Hill Road adjacent to the bike lane and eastbound traffic, which would provide better visibility and roadside clearance for bicyclists than existing roadside slopes and vegetation. The resulting Project impacts on bicyclist operations and safety on bicycle facilities would be *less than significant.*

Street Parking and Passenger Loading Areas

Project plans propose widening of southbound Pleasant Hill Road between Deer Hill and the on-ramp to westbound SR 24 to add a vehicle traffic lane and a bike lane along the west curb, where the plans show elimination of the existing curb parking and passenger loading zone. The maximum observed parking demand of 13 vehicles in the 20 curb parking spaces proposed for elimination would be accommodated by the minimum of 16 curb spaces observed to remain available south of the westbound on-ramp, where a total of 22 spaces are marked.

A maximum accumulation of nine vehicles at one time was observed at the existing designated passenger loading zone and adjacent curb parking on Pleasant Hill Road, waiting to pick up Acalanes High School students after school. The proposed elimination of the existing designated spaces on the west curb of Pleasant Hill Road that are currently used for school passenger loading would result in additional hazardous passenger loading activity at unsuitable locations, which already occurs as described in the Existing conditions section. As shown in Figure 2, site plan refinements incorporated into the December 13, 2018 plans include the proposed widening on southbound Pleasant Hill Road include sufficient dedicated right of way to accommodate a designated passenger loading zone that would replace the existing loading zone.

The Project would also eliminate current use of the site's private property for passenger loading activity, where the maximum observed demand was six vehicles parking for a short time to wait for students. These six vehicles can easily be accommodated at curb parking space that is currently vacant on Stanley Boulevard or Camino Diablo immediately east of the high school.

Emergency Vehicle Access

For the prior analysis of the proposed Project, TJKM consulted with the Contra Costa County Fire Protection District (CCCFPD) to assist in evaluating the Project impacts on emergency vehicle access. The evaluation considered the additional traffic delay impacts resulting from the Project under Existing plus Project conditions, as well as the proposed configuration of Project access driveways as shown in the September 2011 site plans.

A CCCFPD Fire Inspector reviewed the additional traffic delay impacts described in the preceding sections of this report[2]. Station 15 at 3338 Mount Diablo Boulevard, approximately one-half mile west of Pleasant Hill Road, is the primary responding station for the Project vicinity. Emergency response to the Project site could be routed to the proposed driveways on Deer Hill Road via Brown Avenue, or from Pleasant Hill Road via a previously proposed left turn access into the Project driveway.

On the Deer Hill Road response route, the Project's significant impact on delay at the Brown Avenue/Deer Hill Road intersection would result in inadequate emergency access, which would be a *significant impact*. The impact on traffic delay would be mitigated to less-than-significant by requiring the Project sponsor to coordinate with the City to contribute a fair share of the cost, including an in-lieu payment, to install a traffic signal, which will be added to the City's Capital Improvement Projects (CIP) program, as described in a previous section of this report. To mitigate the impact on emergency access, the traffic signal equipment would be required to include an emergency vehicle preemption system (Opticom), which allows emergency response vehicles approaching a signalized intersection to activate a green signal for their travel direction. However, the SR 24 freeway overpass structures on Brown Avenue could obstruct the Opticom activation device on responding emergency vehicles headed northbound on Brown Avenue from Mount Diablo Boulevard toward Deer Hill Road, which could substantially reduce the effectiveness of the traffic signal preemption. To avoid this problem, TJKM recommends that the installation of traffic signal equipment to mitigate the Project's delay impact at the Brown Avenue/Deer Hill Road intersection shall include advance detection devices for the Opticom system as needed to assure effective traffic signal preemption for responding emergency vehicles on northbound Brown Avenue. With this mitigation, the Project impact on emergency access routes using Brown Avenue or Deer Hill Road would be *less than significant*.

The primary emergency response route along Pleasant Hill Road would be northbound from Mount Diablo Boulevard, originating from Station 15. Because the primary response route is northbound, the Project's less than significant impact on a.m. peak-hour traffic delay for southbound Pleasant Hill Road extending north from Deer Hill Road is considered a less-than-significant impact on emergency access. However, the Project's substantial reduction of p.m. peak-hour traffic speeds for northbound Pleasant Hill Road between the off-ramp from westbound SR 24 and the Deer Hill Road/Stanley Boulevard would result in inadequate emergency access to areas of Lafayette served by Pleasant Hill Road between SR 24 and Rancho View Drive. (Areas north of Rancho View Drive would be served adequately by Station 2, located on Geary Road at Larkey Lane.) The result would be a *significant impact*.

To mitigate this impact, TJKM recommends installation of advance detection equipment for the existing Opticom system as needed to assure effective traffic signal preemption for responding

[2] Leach, Ted. Fire Inspector, Contra Costa County Fire Protection District. Personal communication with Rich Haygood, TJKM. February 22 and March 8, 2012.

emergency vehicles on northbound Pleasant Hill Road approaching the Deer Hill Road intersection and the other four signalized study intersections to the north. The advance detection system should be designed to activate a green signal for northbound Pleasant Hill Road at Deer Hill Road with enough time before the emergency vehicle arrives to allow traffic congestion between SR 24 and the intersection to clear sufficiently to facilitate passage of the emergency vehicle. At minimum, the advance detection system should allow emergency vehicles responding from Station 15 to activate traffic signal preemption for northbound Pleasant Hill Road at Deer Hill Road as soon as they turn north from eastbound Mount Diablo Boulevard. With this mitigation, the Project impact on emergency access routes using Pleasant Hill Road would be *less than significant*.

CCCFPD had previously reviewed the Project site plans regarding emergency access. According to a letter from CCCFPD Fire Inspector Ted Leach dated April 25, 2011, which is included as Appendix G, the emergency vehicle access shown on the Project site plans does not comply with minimum turning radius requirements at several on-site driveway locations. Detailed review of the site plan identified 12 corners and one median nose at five on-site driveway intersections that would not provide adequate turning radii. As shown in Figure 2, refinements incorporated into the December 13, 2018 Project site plans include ensuring that corner radii and medians at on-site driveway intersections provide a minimum inside turning radius of 25 feet and a minimum outside turning radius of 45 feet, per CCCFPD requirements.

On-Site Circulation and Parking

TJKM reviewed the Project site plans with regard to on-site circulation, including pedestrian and truck access, as well as parking. Figure 2 shows an overview of the site plan. For purposes of the following discussion, the term "upper loop" refers to the on-site driveway closest to Deer Hill Road that serves buildings A, B, C, and D, and connects the west Project driveway on Deer Hill Road to the Pleasant Hill Road driveway. The "lower loop" refers to the on-site driveway closer to the southerly property boundary that serves buildings E through L and the Clubhouse, terminating at the east Project driveway on Deer Hill Road.

Sight Distance

The vehicle circulation plan appears adequate for passenger cars and light-duty trucks. To maintain adequate sight-distance, TJKM recommends that all landscaping within 15 feet of on-site driveway intersections shall be limited to plants with foliage no more than 30 inches fully mature height above the closest adjacent curb elevation, or trees with canopy foliage no less than seven feet above the closest adjacent curb elevation, or other dimensions as specified by the City Engineer. At the on-site four-way intersection of the upper loop and lower loop driveways, which connect to Pleasant Hill Road and the east driveway on Deer Hill Road respectively, TJKM recommends installation of two-way stop sign control on one of the two driveways. The updated December 2018 site plan, shown in Figure 2, includes these recommendations.

Truck Access and Circulation

TJKM reviewed exhibits dated January 24, 2012 that the Project architect provided, which depict the turning paths for a 26-foot moving truck (total length of 32.5 feet, single-unit with no trailer) accessing the site driveways. For determining the adequacy of site access driveways, the vehicle depicted in the exhibits is representative of the largest vehicle expected for the great majority of delivery and service vehicles and moving trucks that would access the site. However, a very large moving van, which typically consists of a tractor truck with a trailer up to 53 feet long, has significantly larger turning radius requirements, which were not depicted on the exhibits provided to TJKM. According to the Project architect, very large moving vans can access the upper loop driveway and stage loading/unloading for other buildings on the Project site from that location.

Based on TJKM's review of the exhibits provided by the Project architect in 2012, the on-site circulation driveways appear to provide adequate turning radii for truck access as described above. However, the truck turning paths depicted at the three Project driveway intersections with public streets showed the following problems:

- Southbound Pleasant Hill Road, right turn into driveway: The proposed entry driveway width would not reasonably accommodate a large truck, despite an assumed wide right turn starting from the second through lane on Pleasant Hill Road rather than starting from the southbound trap lane that is recommended in previous sections of this report.
- Westbound Deer Hill Road, left turn into east driveway: The proposed entry driveway width would not accommodate a large truck making this left turn.
- Deer Hill Road eastbound right turn or westbound left turn into west driveway: A large truck turning right into the driveway would be required to cross into the oncoming westbound traffic lane on Deer Hill Road and make a wide turn in order to complete the turn within the proposed entry driveway width. Additionally, although not depicted on the exhibits provided by the Project architect, the proposed entry driveway width would

not accommodate a large truck making a left turn into this driveway, based on the similar configuration depicted for a truck turning left into the east driveway.

As shown in Figure 2, site plan refinements incorporated into the December 13, 2018 plans include widening the portion of the entry roadway near each intersection, modifying the median configuration, and/or increasing the corner radius, such that adequate truck turning radii are provided.

Pedestrian Access and Circulation

TJKM reviewed pedestrian access on the site, especially between on-site recreation/activity centers and residential units, and connections to and from public sidewalks.

The site plan proposes walkways that would connect residential units with on-site activity centers and public sidewalk. However, the proposed plan from September 2011 would have forced many pedestrians to use either circuitous routes along walkways with multiple switchbacks, which are designed to avoid steep grades while accommodating the elevation differences on the site, or walk in the on-site driveways. The most notable locations where the 2018 plans adds pedestrian connections include:

- At the west end of the site, a direct connection to the proposed public sidewalk on Deer Hill Road.
- For Building M (near Pleasant Hill Road south of the Project driveway) a direct connection to the rest of the site or to the nearby public sidewalk on Pleasant Hill Road.
- For Building N (near the corner of Pleasant Hill Road and Deer Hill Road) a direct pedestrian connection to the rest of the site.

Additionally, the majority of the Project site area that consists of Buildings A through L provides good pedestrian facilities connecting those buildings and on-site activity centers, and additional pedestrian facilities have been added to connect more directly to public sidewalks on Pleasant Hill Road and Deer Hill Road. Although these more direct connections require combinations of stairs, steep walkways, and occasional serpentine alignments to accommodate the elevation changes along those routes, many Project residents would likely prefer such facilities instead of walking in driveways or on the circuitous routes that the site plans would provide.

As shown in Figure 2, environmentally-beneficial site plan refinements incorporated into the December 13, 2018 plans include construction of additional pedestrian facilities. These facilities would include stairs and walkways on alignments as needed, to provide more direct pedestrian connections for the following routes:

- Between Deer Hill Road and Building A, along the west Project driveway
- Between Building D and Pleasant Hill Road near Building M, along the upper loop driveway
- Between Building G and Deer Hill Road, along the lower loop driveway
- Between Building L and the Leasing Office, along the lower loop driveway
- Between Building M and the recommended facility along the upper loop driveway
- Between Building N and the upper loop driveway, with crosswalks to connect with the recommended Building M connection

Parking Supply and Design

TJKM evaluated the proposed parking supply based on review of the Project site plan and City code requirements. The Project Description specifies use of the City's parking requirements for Mixed Density Residential (M-R-B) Zones. Table X below shows: the parking supply requirements for each unit type based on number of bedrooms, plus guest parking for the total number of units; the proposed number of units of each type; the resulting number of spaces required; and the proposed total number of spaces to be supplied. As shown in the table, the required parking supply of 511 spaces would be more than satisfied by the proposed 567 spaces to be supplied.

To provide an additional reference point for the Project's potential parking demand, TJKM reviewed data presented in *Parking Generation, 4th Edition* published by the Institute of Transportation Engineers. In that publication, the land use category applicable to the Project is Low/Mid-Rise Apartments, which presents data from suburban study sites with an average size of 311 dwelling units, nearly identical to the Project size. The data for suburban locations shows an average peak parking demand of 1.23 vehicles per dwelling unit, and the upper limit of the 95% confidence interval for peak demand is 1.37 vehicles per dwelling unit. The proposed Project parking supply ratio of 1.8 spaces per unit would exceed these parking demand ratios. Additionally, an average parking supply ratio of one space per bedroom was reported for study sites; for the proposed 525 bedrooms in the Project, this would equate to a supply of 525 spaces, which the proposed 567 spaces would exceed. Based on this analysis, the proposed parking supply for the Project would be adequate to accommodate peak parking demand on-site.

Table X: Project Parking Supply

Unit Type/ No. of Bedrooms	***Units***	***Required Spaces/Unit***	***Spaces Required***	***Spaces Supplied***
1	140	1.2	168	
2	140	1.5	210	
3	35	2.0	70	
Guest	315	0.2	63	
TOTAL			511	567
Overall Spaces/Unit			1.62	1.80

TJKM also reviewed the parking dimensions proposed on the Project site plans. All of the proposed parking would be at a 90-degree angle to the aisles, for which the City's off-street parking dimensions require a minimum aisle width of 26 feet and a minimum stall depth of 18 feet. All parking aisles appear to meet the minimum width standard. Many of the parking stalls are labeled with a depth of 16 feet between the back of the stall markings and the raised curb near the front of the vehicle, which is acceptable if the remaining two feet that is assumed for vehicle front overhang is a flat area with approximately the same height as the curb (typically six inches). Although many of the stalls shown with this depth are located along proposed sidewalks that would provide the necessary vehicle front overhang area, others are located where the height of the front overhang area could not be ascertained. Additionally, the sidewalks where the vehicle front overhang would encroach may require additional width to meet minimum clearance standards, which exclude such encroachment area from the required width.

The proposed parking design features would not substantially increase hazards, and the resulting impact would be less-than-significant. Refinements shown in the December 13, 2018 site plan would address the potential issues related to stall depth and vehicle front overhang.

Construction

According to the Project Description, grading on the Project site during construction would result in approximately 25,000 to 30,000 haul trips distributed over a nine-month period. Assuming five-day work weeks, this would result in an average of approximately 150 haul trips per day, for a total of 300 truck trips (150 arriving empty, 150 leaving full) per day. Assuming eight hours per work day for active hauling operations, an average of approximately 40 truck trips per hour would result. All truck trips for this hauling operation are expected to arrive at and depart from the Project vicinity using the SR 24 freeway and ramps at the Pleasant Hill Road interchange, in compliance with the City's truck route ordinance and standard requirements of a Construction Staging Plan that would be a condition of approval of the Project. As a result, truck trips for this hauling operation are expected to be prohibited on Deer Hill Road west of the Project site boundary.

Based on the analysis of Existing and Existing plus Project traffic conditions presented in the previous sections of this report, the truck trips generated during the grading phase of construction on the Project site could result in the following conditions:

- Potential large truck turning movements during the a.m. peak hour at the Deer Hill Road/Pleasant Hill Road intersection would conflict with congested southbound Pleasant Hill Road traffic and significantly increase delay at the intersection.
- Large trucks potentially attempting U-turn movements from northbound to southbound Pleasant Hill Road at the Deer Hill Road intersection would be forced into stopping and backing up movements because of the constrained intersection geometry, contributing to traffic delay and queues at the intersection.
- Large trucks potentially attempting left turns from northbound Pleasant Hill Road to Deer Hill Road could be forced into stopping and backing up movements, or possibly drive over the south raised median on Pleasant Hill Road or conflict with eastbound vehicles stopped at the crosswalk limit line on Deer Hill Road, because of the constrained intersection geometry. These conditions would contribute to traffic delay and queues at the intersection and substantially increase hazards.
- Large trucks are expected to enter northbound Pleasant Hill Road from the westbound SR 24 off-ramp and weave across northbound lanes to turn left at Deer Hill Road. During the p.m. peak hour when this segment of northbound Pleasant Hill Road is congested, these large truck weaving movements would significantly reduce traffic speeds and substantially increase hazards.
- Potential large truck turning movements on Deer Hill Road to access the Project site could occur at locations with inadequate sight-distance, which would substantially increase hazards.
- Potential large truck traffic during the a.m. and school p.m. peak hours on Pleasant Hill Road and Deer Hill Road would conflict with pedestrians and passenger loading activity generated by Acalanes High School on school days, substantially increasing hazards for school pedestrians.
- Elimination of the existing passenger loading zone on the west curb of Pleasant Hill Road along the Project frontage would substantially increase hazards for school pedestrians and vehicle traffic.

During the grading phase of construction on the Project site, these conditions would result in *temporary significant impacts*.

To mitigate these construction impacts, TJKM recommends that the Project sponsor prepare and submit a Construction Staging Plan for review and approval by the City Engineer. The Construction Staging Plan shall include elements such as flaggers for trucks entering and exiting the site, and a designated liaison to coordinate with the City, schools, and the public as needed, and shall implement the following required measures:

- Large trucks involved in the grading phase of construction shall be prohibited from arriving at or departing from the Project site during the hours of 7:00 to 9:00 a.m. and 3:00 to 7:00 p.m. on any school day, and 7:00 to 9:00 a.m. and 4:00 to 7:00 p.m. on any non-school weekday.
- Large trucks shall be prohibited from making U-turn movements from northbound to southbound Pleasant Hill Road at the Deer Hill Road intersection during construction. The Construction Staging Plan shall specify for each construction phase whether access to the Project site from northbound Pleasant Hill Road will be allowed by providing a median opening for left turns directly into the site south of Deer Hill Road, or will require a left turn onto Deer Hill Road and a subsequent left turn into the site,
- If the Construction Staging Plan allows large trucks to turn left from northbound Pleasant Hill Road to Deer Hill Road, accommodation of their turning radius may require the following temporary measures: modifications to the south median within up to 15 feet from the nose; relocation of the limit line for eastbound Deer Hill Road traffic lanes by up to 15 feet behind the existing crosswalk marking; adjustments to vehicle detectors, any other affected traffic signal equipment, and traffic signal timing as required to maintain safe and effective operations; and, measures as otherwise specified by the City Engineer.
- The proposed locations and configuration of access points on Pleasant Hill Road and Deer Hill Road where large trucks would turn into or out of the Project site during construction shall be subject to approval by the City Engineer, to ensure consideration of sight-distance constraints and implementation of appropriate safety precautions.
- During any construction phase when access to the existing passenger loading zone on the west curb of Pleasant Hill Road along the Project frontage would be unavailable on school days, one of the following measures:
    - Provide a safe, temporary alternative loading zone in the immediate area, subject to approval by the City Engineer. Potential alternatives may include temporary use of the property on the northwest corner of Pleasant Hill Road and Deer Hill Road, which would require surface improvements to facilitate safe vehicle and pedestrian access.
    - Stage construction on the subject portion of the site such that during the school break for summer, the existing passenger loading zone would be demolished and replaced by construction of the recommended roadway configuration and passenger loading zone on the Pleasant Hill Road Project frontage.
- The Construction Staging Plan shall require restriping of bike lanes and other pavement markings at the discretion of the City Engineer to address wear from construction traffic.
- Special school events, such as swim meets, shall be addressed by the designated liaison required in the Construction Staging Plan, or any additional measures that the City Engineer may require in that Plan.

Implementation of these measures would result in a *less-than-significant impact.*

Cumulative Year 2035 No Project Conditions

Future Traffic Conditions

This section details expected traffic conditions under Cumulative Year 2035 No Project Conditions for the study intersections and roadways in the Project vicinity. For purposes of this traffic analysis, the Cumulative Year 2035 No Project Condition represents no change from existing conditions at the Project site. This scenario provides a basis of comparison for expected traffic generated by the Project under Cumulative Year 2035 plus Project Conditions.

The Cumulative Year 2035 No Project Conditions turning movement volumes at the study intersections were projected from 2011 conditions using the same two percent annual growth rate used to develop Existing (2018) traffic conditions. The turning movement volumes resulting from application of the growth factors described above are shown in Figure 8. Anticipated traffic controls and lane geometries for the study intersections, which are the same as Existing Conditions, are also included in the figure.

Intersection Level of Service Analysis Results, Cumulative Year 2035 No Project

Table XI illustrates the results of the level of service analysis for the study intersections in the under Cumulative Year 2035 No Project Conditions. Detailed level of service calculations are contained in Appendix E. Under Cumulative Year 2035 No Project Conditions, all of the signalized study intersections would operate within acceptable City LOS standards except the following three:

- Springhill Road – Quandt Road/Pleasant Hill Road: LOS F during the a.m. peak hour
- Deer Hill Road – Stanley Blvd./Pleasant Hill Road: LOS F during all three peak hours
- Deer Hill Road/SR 24 Westbound Ramps – Laurel Drive: LOS F during the a.m. and p.m. peak hours, LOS E during the school p.m. peak hour

At the only unsignalized study intersection in the Cumulative Year 2035 No Project Condition, the northbound and southbound stop-controlled minor approaches on Brown Avenue at Deer Hill Road would operate at LOS F with extreme delays during the a.m. and p.m. peak hours, and at LOS E during the school p.m. peak hour. The California Manual on Uniform Traffic Control Devices (MUTCD) peak hour traffic signal warrant would be met for both peak hours under Cumulative Year 2035 No Project Condition, which is also the case under Existing conditions.

Table XI: Peak Hour Intersection Levels of Service – Cumulative 2035 No Project

ID	Intersection	Cumulative Year 2035 No Project Conditions					
		A.M. Peak Hour		School P.M. Peak Hour		P.M. Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS
1	Rancho View Drive/Pleasant Hill Road	35.3	D	12.5	B	25.1	C
2	Green Valley Drive/Pleasant Hill Road	4.5	A	11.5	B	15.9	B
3	Reliez Valley Road/Pleasant Hill Road	25.4	C	8.5	A	7.9	A
4	Springhill Road – Quandt Road/ Pleasant Hill Road	**166.7**	**F**	14.7	B	**52.1**	**D**
5	Deer Hill Road –Stanley Blvd./ Pleasant Hill Road	**239.2**	**F**	**113.0**	**F**	**208.6**	**F**
6	Mt. Diablo Boulevard - SR 24 EB On-ramp/Pleasant Hill Road	21.9	C	34.0	C	38.0	D
7	SR 24 EB Off-Ramp – Old Tunnel Road/Pleasant Hill Road	12.6	B	15.0	B	17.8	B
8	Deer Hill Road/Brown Avenue	**4,181.6**	**F**	-	-	**1,2813.2**	**F**
9	Deer Hill Road/First Street – Sierra Vista Way	30.7	C	22.4	C	37.4	D
10	Deer Hill Road/SR 24 WB Ramps -Laurel Drive	**143.3**	**F**	**64.5**	**E**	**165.6**	**F**

Notes: 1) LOS=Level of Service, Delay = Average control delay per vehicle in seconds
2) Signalized and all-way stop controlled intersections - Delay / LOS is for overall intersection
3) Unsignalized one- and two-way stop controlled intersections - Delay / LOS is for critical minor stop-controlled approach.
4) **Bold** indicates unacceptable operational conditions based on applicable City standards.
5) "Good" LOS D is defined as 35 to 45 seconds of average control delay per vehicle. "Poor" LOS D is defined as 45 to 55 seconds of average delay.
6) NA=Not analyzed. At intersection #8, a.m. and p.m. commute peaks provide worst-case results.

Pleasant Hill Road Corridor Traffic Simulation

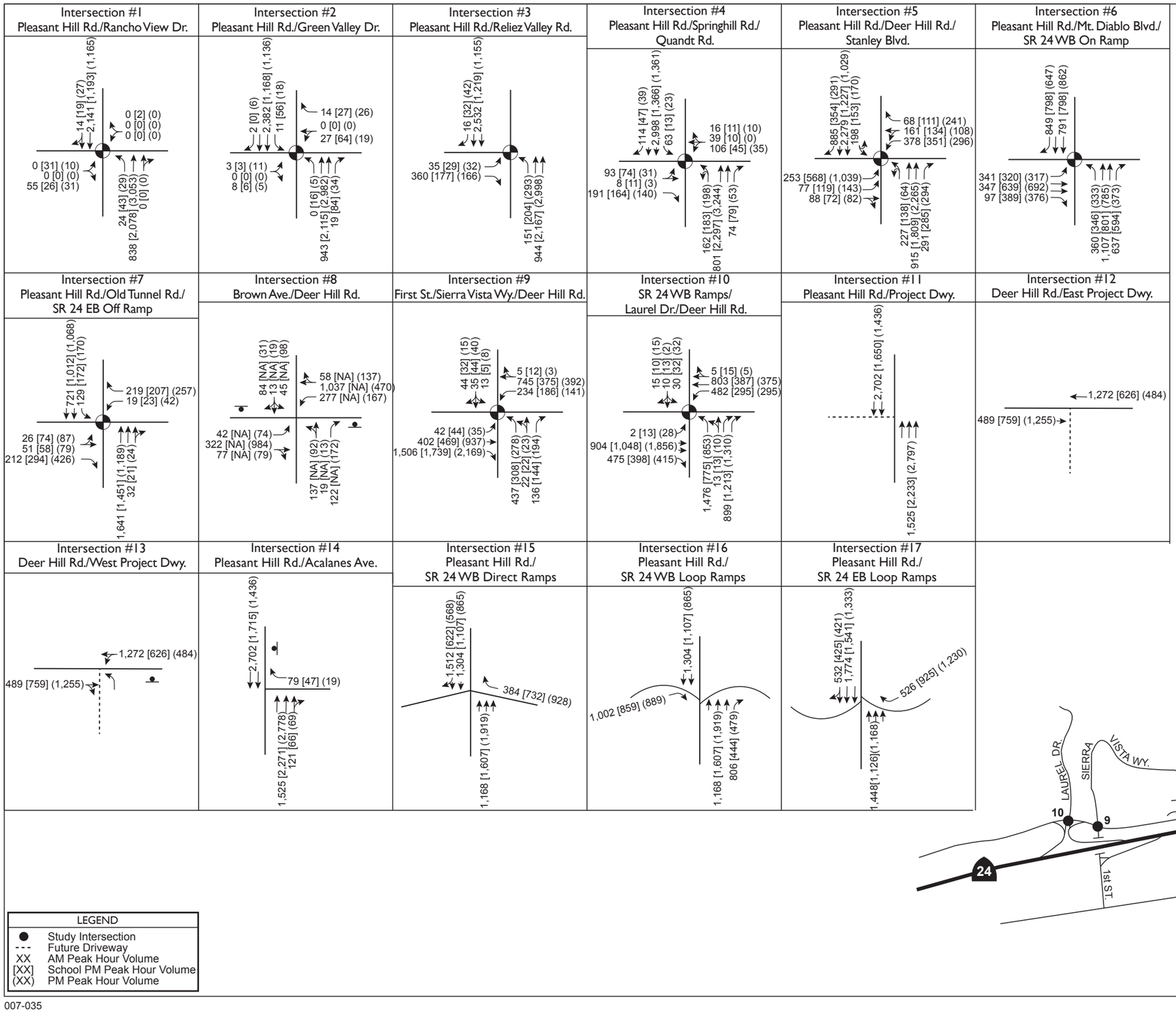
SimTraffic simulation results for Cumulative Year 2035 No Project Conditions were reviewed to supplement the intersection LOS results. During the a.m. peak hour, traffic on southbound Pleasant Hill Road would back up from the intersections at Deer Hill Road – Stanley Boulevard and Springhill Road – Quandt Road, extending the queue past Rancho View Drive. This back up is similar to that found under Existing Conditions. In effect, as described for Existing conditions, the LOS F conditions at the Deer Hill Road – Stanley Boulevard intersection would also occur upstream at the Springhill Road/Quandt Road, Reliez Valley Road, Green Valley Drive, and Rancho View Drive intersections, which impacts southbound Pleasant Hill Road traffic and other traffic movements that conflict with southbound traffic at each intersection. However, the City's intersection LOS standards described in the previous Level of Service Analysis methodology section are based on the LOS results calculated at each intersection individually, which are the results shown in Table XI: Peak Hour Intersection Levels of Service – Cumulative 2035 No Project Table XI.

During the commute p.m. peak hour, traffic on northbound Pleasant Hill Road would continue to back up from the intersection at Deer Hill Road – Stanley Boulevard and the queue would extend past the off-ramp from westbound SR 24 as well as onto that off-ramp toward the freeway mainline.

City of Lafayette - The Terraces of Lafayette EIR

Cumulative No Project Traffic Volumes, Lane Geometry, and Controls

Figure 8



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Segment Speeds

TJKM also analyzed Cumulative Year 2035 No Project traffic conditions on segments of Pleasant Hill Road between the free-flow freeway ramp junctions at SR 24 and the location of the proposed Project driveway on Pleasant Hill Road using SimTraffic, to establish future baseline speeds for comparison to weaving conditions with the Project. The resulting peak-hour average speeds on the study segments are shown in Table XII. The p.m. peak hour average speeds for the northbound direction on Pleasant Hill Road segments are relatively low, which indicates long delays and queues that would extend back from the intersection at Deer Hill Road – Stanley Boulevard.

Table XII: Pleasant Hill Road Segment Speeds – Cumulative 2035 No Project

Segment of Pleasant Hill Road	*Existing Average Speeds (mph)*	
	A.M. Peak Hour	*P.M. Peak Hour*
Northbound Pleasant Hill Road between Acalanes Drive and Deer Hill Road/Stanley Boulevard	10.5	6.5
Southbound Pleasant Hill Road between Project Driveway and SR 24 WB on-ramp	19.5	22.5

Note: Average speeds are CORSIM simulation model results.

Routes of Regional Significance Delay Index Results

The previous analysis conducted in 2011 included a detailed analysis for CCTA-designated Routes of Regional Significance that would be affected by Project traffic. The CCTA traffic model was used for Cumulative Year 2030 No Project forecasts. Delay Indexes on State Route 24 and Pleasant Hill Road north of State Route 24 during the a.m. and p.m. peak hours were determined for the Cumulative Year 2030 No Project scenario. The Delay Index measures travel congestion and is expressed as the ratio of time required to travel between two points during the peak hour (the congested travel time) versus the time required during uncongested off-peak times. A Delay Index of 2.0, which is the acceptable standard of significance for peak hour peak direction travel on State Route 24 and Pleasant Hill Road north of State Route 24, means that congested travel time is twice as long as during an off-peak travel time. After 2030, the minimal acceptable Delay Index on State Route 24 will increase to 2.5. The travel times on State Route 24 between St. Stephen's Drive and Interstate 680 for uncongested, off-peak conditions are approximately 5.1 minutes for eastbound traffic and 5.3 minutes for westbound traffic. These travel times were calculated based on the free-flow freeway speed and the length of the subject freeway segment.

The Delay Indexes in the Cumulative Year 2030 No Project scenario were calculated during the a.m. and p.m. peak hours on State Route 24 in both the eastbound and westbound direction between St. Stephens Drive and Interstate 680, and are summarized in Table XIII. As noted in the table, State Route 24 will operate with an unacceptable Delay Index of over 2.5 for westbound traffic in the a.m. peak hour and eastbound traffic in the p.m. peak hour under the Cumulative Year 2030 No Project scenario. The table also includes the peak-hour densities and resulting LOS for SR 24, based on parameters that apply to freeway facilities.

For Pleasant Hill Road in both the northbound and southbound direction between State Route 24 and Taylor Boulevard, the Delay Indexes in the Cumulative Year 2030 No Project scenario were calculated during the a.m. and p.m. peak hours, and are summarized in Table XIV. As noted in the table, Pleasant Hill Road will operate with an unacceptable Delay Index of over 2.0 for southbound traffic in the a.m. peak hour and northbound traffic in the p.m. peak hour under the Cumulative Year 2030 No Project scenario.

Table XIII: Cumulative Year 2030 No Project Delay Index - State Route 24 (Between St. Stephens Drive and I-680)

	2030 Volume		*Travel Time (minutes)*		*Delay Index*		*Density (vehicles/mile/lane)*		*LOS*	
Peak Hour	***East-bound***	***West-bound***	***East-bound***	***West-bound***	***East-bound***	***West-bound***	***East-bound***	***West-bound***	***East-bound***	***West-bound***
A.M.	8,524	11,370	7.74	18.59	1.512	**3.503**	31.3	>45.0	D	F
P.M.	11,916	9,531	20.49	9.84	**4.000**	1.853	>45.0	37.9	F	E

Table XIV: Cumulative Year 2030 No Project Delay Index - Pleasant Hill Road (Between State Route 24 and Taylor Boulevard)

	2030 Volume		*Travel Time (minutes)*		*Delay Index*	
Peak Hour	***Northbound***	***Southbound***	***Northbound***	***Southbound***	***Northbound***	***Southbound***
A.M.	1,972	2,859	2.89	9.61	1.003	**3.337**
P.M.	2,939	2,412	10.71	6.52	**3.719**	2.264

It should be noted that the Delay Index results provided above are substantially higher than the 2040 No Project projections provided in the 2017 Lamorinda Action Plan. Those projections utilize a baseline year of 2011. Before applying any of the improvements proposed by the Plan, the peak direction Delay Index in 2040 on SR-24 is expected to be 2.4 in the a.m. peak hour and 2.0 in the p.m. peak hour. The 2040 No Project peak direction Delay Index on Pleasant Hill Road is expected to be 1.3 in the a.m. peak hour and 1.9 in the p.m. peak hour.

Cumulative Year 2035 plus Project Conditions

This scenario is similar to Cumulative Year 2035 No Project Conditions, but with the addition of traffic generated by the proposed Project and proposed improvements on Pleasant Hill Road, as described in the Existing plus Project section of this report. Except for the environmentally-beneficial improvements identified as part of the Project and its proposed driveways, the assumed roadway network and nearby area development is the same under this analysis scenario as for Cumulative Year 2035 No Project Conditions.

Project Trip Generation, Distribution, and Assignment

The proposed Project trip generation, distribution, and assignment assumed under Cumulative Year 2035 plus Project Conditions is identical to that assumed under Existing plus Project Conditions. The resulting assigned Project trips were added to the Cumulative Year 2035 No Project Conditions traffic volumes to generate Cumulative Year 2035 plus Project traffic volumes. Figure 9 illustrates the resulting traffic volumes under Cumulative Year 2035 plus Project Conditions.

Intersection Level of Service Analysis Results, Cumulative Year 2035 plus Project

Table XV presents the results of the level of service analysis for the study intersections in the Project under Cumulative Year 2035 plus Project Conditions. Detailed level of service calculations are contained in Appendix F.

Under Cumulative Year 2035 plus Project Conditions with the addition of proposed Project traffic, all signalized intersections are expected to continue operating under acceptable City LOS standards, except the three intersections that would also operate at an unacceptable LOS under Cumulative Year 2035 No Project Conditions:

- Springhill Road – Quandt Road/Pleasant Hill Road: LOS F during the a.m. peak hour, with delay increasing by 0.2 seconds, and poor LOS D during the p.m. peak hour, with delay increasing by 0.5 seconds. Because the Project would increase delay by less than five seconds, the result would be a *less-than-significant impact*.
- Deer Hill Road – Stanley Blvd./Pleasant Hill Road: LOS F during all three peak hours, with delay decreasing by 76.8 seconds in the a.m. peak hour, decreasing by 8.6 seconds in the school p.m. peak hour, and decreasing by 3.0 seconds in the p.m. peak hour. Because the Project would increase delay by less than five seconds, the result would be a *less-than-significant impact*.
- Deer Hill Road/SR 24 Westbound Ramps – Laurel Drive: LOS F during the a.m. and p.m. peak hours, with delay increasing by 1.4 seconds and 1.5 seconds respectively, and LOS E in the school p.m. peak hour, with delay increasing by 0.2 seconds. Because the Project would increase delay by less than five seconds, the result would be a *less-than-significant impact*.

The unsignalized southwest Project driveway on Deer Hill Road would operate at LOS F during the a.m. and p.m. peak hours, which is unacceptable for this one-way stop control intersection. However, the California Manual on Uniform Traffic Control Devices (MUTCD) peak hour traffic signal warrant is not met for any peak hour under Cumulative Year 2035 plus Project conditions. At the only unsignalized study intersection existing in the No Project condition, the northbound and southbound stop-controlled minor approaches on Brown Avenue at Deer Hill Road would continue operating at an unacceptable LOS F during the a.m. and p.m. peak hours, with delay increases substantially higher than five seconds. The California Manual on Uniform Traffic Control Devices (MUTCD) peak hour traffic signal warrant is met for both peak hours under both

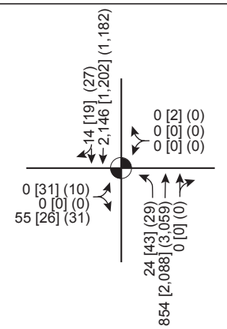
Cumulative Year 2035 No Project and Cumulative Year 2035 plus Project conditions. The Project would increase delay by more than five seconds at an intersection operating below the acceptable standard, resulting in a *significant impact*.

Table XV: Peak Hour Intersection Levels of Service – Cumulative 2035 plus Project

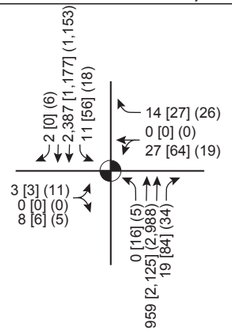
ID	Intersection	Cumulative Year 2035 Plus Project Conditions					
		A.M. Peak Hour		School P.M. Peak Hour		P.M. Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS
1	Rancho View Drive/Pleasant Hill Road	35.7	D	12.6	B	25.2	C
2	Green Valley Drive/Pleasant Hill Road	4.5	A	11.5	B	16.2	B
3	Reliez Valley Road/Pleasant Hill Road	25.5	C	8.5	A	12.2	B
4	Springhill Road – Quandt Road/ Pleasant Hill Road	**166.9**	**F**	14.8	B	**52.6**	**D**
5	Deer Hill Road –Stanley Blvd./ Pleasant Hill Road	**162.4**	**F**	**104.4**	**F**	**205.6**	**F**
6	Mt. Diablo Boulevard - SR 24 EB On-ramp/Pleasant Hill Road	22.0	C	34.3	C	38.2	D
7	SR 24 EB Off-Ramp – Old Tunnel Road/Pleasant Hill Road	12.6	B	15.2	B	18.6	B
8	Deer Hill Road/Brown Avenue	**4,672.0**	**F**	-	-	**19,432.0**	**F**
	Mitigation - Signalize Intersection	*22.7*	*C*	-	-	*20.8*	C
	Mitigation – Roundabout	***91.4***	***F***	-	-	***114.3***	**F**
9	Deer Hill Road/First Street – Sierra Vista Way	32.1	C	23.0	C	38.6	D
10	Deer Hill Road/SR 24 WB Ramps -Laurel Drive	**144.7**	**F**	**64.7**	**E**	**167.1**	**F**
11	Pleasant Hill Road/Project Driveway	11.7	B	9.9	A	905	A
12	Deer Hill Road/East Project Driveway	11.9	B	15.2	C	27.9	D
13	Deer Hill Road/ West Project Driveway	**76.7**	**F**	19.1	C	**61.9**	**F**

Notes: 1) LOS=Level of Service, Delay = Average control delay per vehicle in seconds
2) Signalized and all-way stop controlled intersections - Delay / LOS is for overall intersection
3) Unsignalized one- and two-way stop controlled intersections - Delay / LOS is for critical minor stop-controlled approach.
4) **Bold** indicates unacceptable operational conditions based on applicable City standards.
5) "Good" LOS D is defined as 35 to 45 seconds of average control delay per vehicle. "Poor" LOS D is defined as 45 to 55 seconds of average delay.
6) NA=Not analyzed. At intersection #8, a.m. and p.m. commute peaks provide worst-case results.

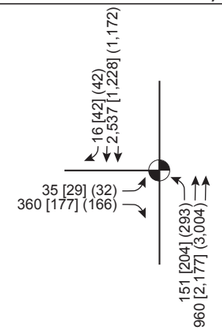
Intersection #1
Pleasant Hill Rd./Rancho View Dr.



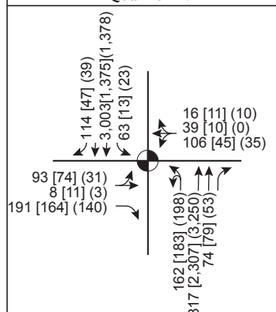
Intersection #2
Pleasant Hill Rd./Green Valley Dr.



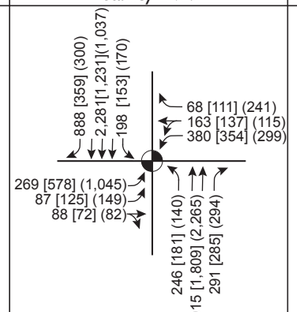
Intersection #3
Pleasant Hill Rd./Reliez Valley Rd.



Intersection #4
Pleasant Hill Rd./Springhill Rd./ Quandt Rd.

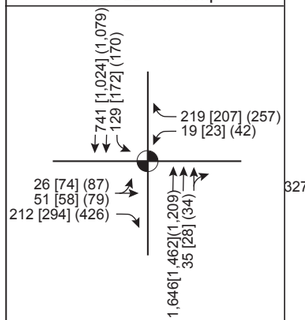


Intersection #5
Pleasant Hill Rd./Deer Hill Rd./ Stanley Blvd.

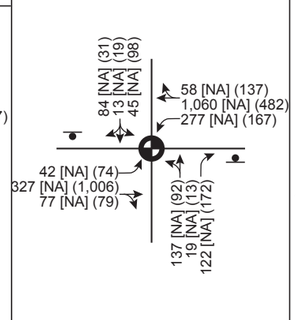


Intersection #6
Pleasant Hill Rd./Mt. Diablo Blvd./ SR 24 WB On Ramp

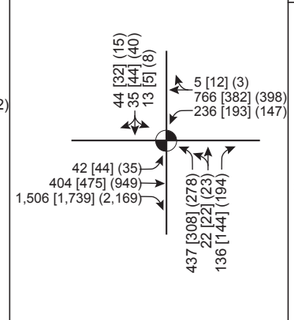
Intersection #7
Pleasant Hill Rd./Old Tunnel Rd./ SR 24 EB Off Ramp



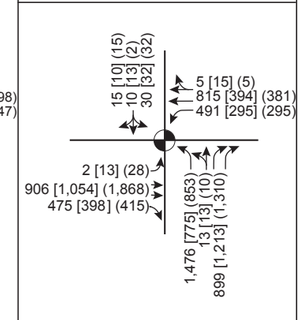
Intersection #8
Brown Ave./Deer Hill Rd.



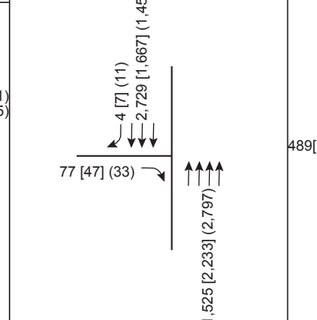
Intersection #9
First St./Sierra Vista Wy./Deer Hill Rd.



Intersection #10
SR 24 WB Ramps/ Laurel Dr./Deer Hill Rd.

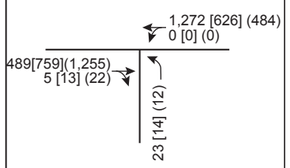


Intersection #11
Pleasant Hill Rd./Project Dwy.

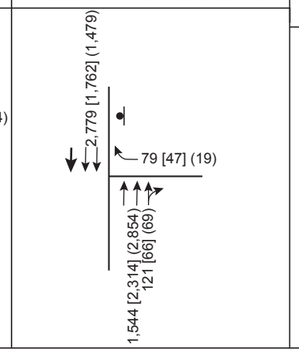


Intersection #12
Deer Hill Rd./East Project Dwy.

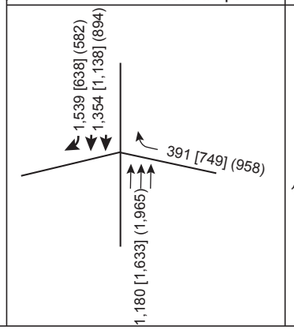
Intersection #13
Deer Hill Rd./West Project Dwy.



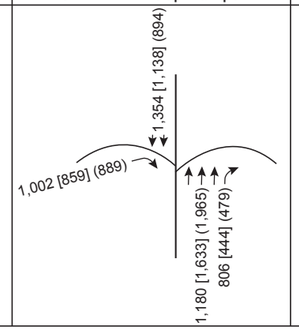
Intersection #14
Pleasant Hill Rd./Acalanes Ave.



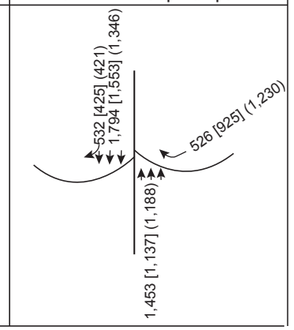
Intersection #15
Pleasant Hill Rd./ SR 24 WB Direct Ramps

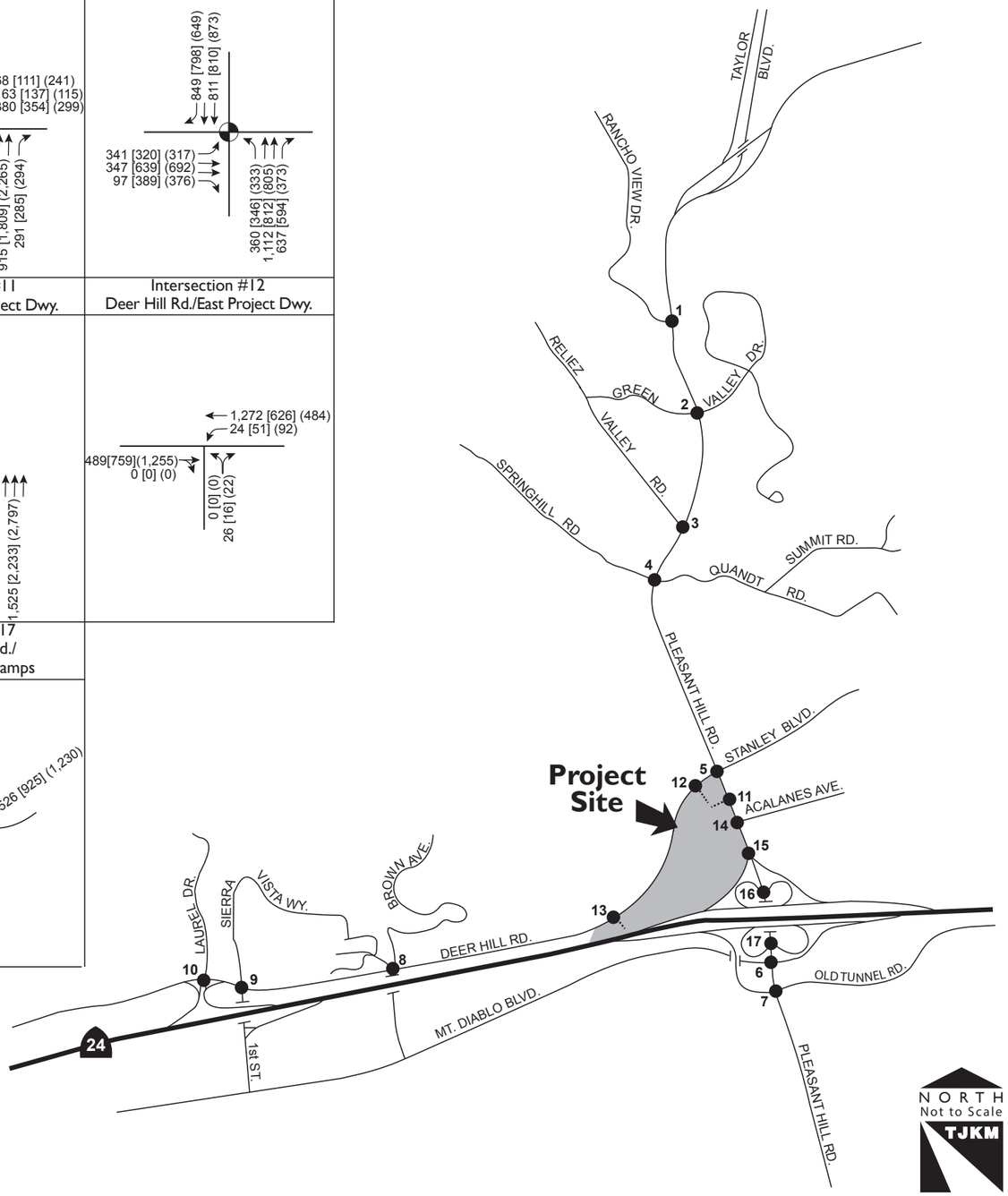


Intersection #16
Pleasant Hill Rd./ SR 24 WB Loop Ramps



Intersection #17
Pleasant Hill Rd./ SR 24 EB Loop Ramps





LEGEND

●	Study Intersection
◐	Traffic Signal
	Stop Sign
---	Future Driveway
XX	AM Peak Hour Volume
[XX]	School PM Peak Hour Volume
(XX)	PM Peak Hour Volume
➔	Mitigated Lane
◐	Mitigated Traffic Signal

Intersection Mitigation

To mitigate the impact at the Deer Hill Road/Brown Avenue intersection, the Project sponsor shall coordinate with the City to contribute a proportionate fair share of the cost, including an in-lieu payment, to install either a traffic signal or a roundabout, which will be added to the City's Capital Improvement Projects (CIP) program. With signalization, the intersection would operate at LOS C during the a.m. and p.m. peak hours under Cumulative plus Project conditions. With a roundabout, the intersection would operate at LOS F during both peak hours under Cumulative plus Project Conditions, with a substantial reduction in delay relative to Existing Conditions. Both mitigation alternatives would reduce the Project impact to *less-than-significant.*

Left-Turn Queues at Project Driveways

Left-turn queue lengths on westbound Deer Hill Road at two Project driveways were analyzed using SimTraffic results for Cumulative Year 2035 plus Project conditions in the a.m., school p.m., and commute p.m. peak hours. The resulting 95th-percentile queue lengths were compared with the left-turn storage lane lengths that would be provided at these intersections to determine if that queue storage capacity would be adequate to avoid spillback into other lanes. The Cumulative Year 2035 plus Project results for the Project Driveways on Westbound Deer Hill Road are summarized as follows:

- The estimated 95th-percentile left-turn queue lengths during the a.m. peak hour would be no more than one car length at either driveway. During the school p.m. and p.m. peak periods, eastbound queuing backing up from the Deer Hill Road – Stanley Blvd./Pleasant Hill Road intersection would occasionally prevent westbound vehicles from turning left into the eastern Project driveway, generating peak estimated 95th percentile queues between 150 and 230 feet. TJKM recommends ensuring that the eastern driveway include at least 250 feet of left turn storage for westbound vehicles.
- At the west Project driveway, where a minimal number of left turns into the Project are expected, no storage lane is proposed in the Project plans; the safety aspects of this condition are addressed in the Existing plus Project section of this report. TJKM recommends that no left turns into the Project be permitted from westbound Deer Hill Road.

Pleasant Hill Road Corridor Traffic Simulation

SimTraffic simulation results for Cumulative Year 2035 plus Project conditions were reviewed to supplement the intersection LOS results. During the a.m. peak hour under Cumulative Year 2035 No Project conditions, traffic on southbound Pleasant Hill Road would continue to back up from the intersections at Deer Hill Road – Stanley Boulevard and Springhill Road – Quandt Road, with the queue extending past Rancho View Drive. The addition of Project traffic would result in a minor increase in this queue length. In effect, as described for Cumulative Year 2035 No Project conditions, the LOS F conditions at the Deer Hill Road – Stanley Boulevard intersection would also occur upstream at the Springhill Road/Quandt Road, Reliez Valley Road, Green Valley Drive, and Rancho View Drive intersections, which impacts southbound Pleasant Hill Road traffic and other traffic movements that conflict with southbound traffic at each intersection. However, the City's intersection LOS standards described in the previous Level of Service Analysis Methodology section are based on the LOS results calculated at each intersection individually, which are the results shown in Table XV.

Segment Speeds and Weaving Conditions

TJKM evaluated the proposed additional southbound lane on Pleasant Hill Road to identify potential impacts between Deer Hill Road/Stanley Blvd. and the westbound SR-24 on-ramp as a result of the

proposed environmentally-beneficial changes to Pleasant Hill Road. Right turns out of the Project driveway into the additional southbound lane would be entering a right-turn-only lane for the on-ramp to westbound SR 24. Most of these Project trips would merge left to continue further south on Pleasant Hill Road rather than use the westbound SR 24 on-ramp, which would introduce a weaving movement on southbound Pleasant Hill Road between the Project driveway and the on-ramp.

SimTraffic analysis was performed for this roadway segment to compare traffic speeds for Cumulative Year 2035 No Project conditions to Cumulative Year 2035 plus Project conditions with the additional southbound lane. As shown in Table XVI below, Cumulative Year 2035 plus Project conditions with the additional southbound lane would increase average speed by 59 percent in the a.m. peak hour and 38 percent in the p.m. peak hour on this segment of southbound Pleasant Hill Road, compared to Cumulative Year 2035 No Project conditions.

On northbound Pleasant Hill Road, the addition of Project traffic would increase average speed by 10 percent in the a.m. peak hour and reduce average speed by 31 percent in the p.m. peak hour. This reduction is largely due to the persistent northbound queuing at Deer Hill Road/Stanley Boulevard. As the Project does not add any northbound weaving operations on this segment, a reduction in travel speed does not reflect unsafe weaving conditions. Therefore, the Project would have a *less than significant* impact on traffic safety.

Table XVI: Pleasant Hill Road Segment Speeds – Cumulative 2035 plus Project

Segment	*Peak Hour*	*Average Speeds (mph)*		*Speed Change*	*Speed Change Percentage*
		Cumulative 2035 No Project	*Cumulative 2035 Plus Project*		
Northbound Pleasant Hill Road between Acalanes Drive and Deer Hill Road/Stanley Boulevard	A.M.	10.5	11.5	+1	10%
	P.M.	6.5	4.5	-2	-31%
Southbound Pleasant Hill Road between Project Driveway and SR 24 WB on-ramp	A.M.	19.5	31	+11.5	59%
	P.M.	22.5	31	+8.5	38%

Note: Average speeds are SimTraffic simulation model results.

During the p.m. peak hour on northbound Pleasant Hill Road, most drivers will likely make a left or U-turn at the Deer Hill Road signal to access the Project site. Some drivers may instead try the alternative of turning right on Acalanes Avenue and then using Nogales Street, Camino Diablo, and westbound Stanley Boulevard to get back to the signal at Pleasant Hill Road, where they would make a left turn or continue straight onto Deer Hill Road to access the Project site. Under Cumulative Year 2035 plus Project conditions, a typical travel time along this route, including the average delay of approximately one minute on westbound Stanley Boulevard at the Pleasant Hill Road signal, could be similar to the average delay for drivers continuing northbound on Pleasant Hill Road to make a left or U-turn at Deer Hill Road. Drivers attempting this route would quickly recognize its longer travel time and learn to avoid it.

As described in the previous Emergency Vehicle Access section, the primary emergency response route along Pleasant Hill Road would be northbound from Mount Diablo Boulevard, originating from Station 15. As under Existing plus Project conditions, under Cumulative Year 2035 plus Project conditions the Project's substantial reduction of p.m. peak-hour traffic speeds for

northbound Pleasant Hill Road between the off-ramp from westbound State Route 24 and Deer Hill Road/Stanley Boulevard would result in inadequate emergency access to other areas of Lafayette served by Pleasant Hill Road between State Route 24 and Rancho View Drive. The result would be a *significant* cumulative impact.

To mitigate this impact, TJKM recommends installation of advance detection equipment for the existing Opticom system as needed to assure effective traffic signal preemption for responding emergency vehicles on northbound Pleasant Hill Road, as described previously for mitigation under Existing plus Project conditions. With this mitigation, the Project impact on emergency access routes using Pleasant Hill Road would be *less than significant*.

Routes of Regional Significance Delay Index Results

The previous analysis conducted in 2011 included a detailed analysis for CCTA-designated Routes of Regional Significance that would be affected by Project traffic, utilizing a horizon year of 2030 based on CCTA modeling results. Delay Indexes on the State Route 24 freeway and Pleasant Hill Road north of State Route 24 during the a.m. and p.m. peak hours were determined for the Cumulative Year 2030 plus Project scenario. For this analysis of the CCTA-designated Routes of Regional Significance, the additional trips generated by the Project were added to traffic forecasts from the CCTA traffic model for Cumulative Year 2030 No Project conditions.

The Delay Indexes in the Cumulative Year 2030 plus Project scenario were calculated during the a.m. and p.m. peak hours on State Route 24 in both the eastbound and westbound direction between St. Stephens Drive and Interstate 680, and are summarized in Table XVII. As noted in the table, State Route 24 will operate with an unacceptable Delay Index of over 2.5 for westbound traffic in the a.m. peak hour and eastbound traffic in the p.m. peak hour under the Cumulative Year 2030 plus Project scenario. The table also includes the peak-hour densities and resulting LOS for SR 24, based on parameters that apply to freeway facilities. The addition of Project trips to SR 24 would increase the peak hour peak direction Delay Index by 0.006 for westbound traffic in the a.m. peak hour and by 0.012 for eastbound traffic in the p.m. peak hour under Cumulative Year 2030 plus Project conditions.

For Pleasant Hill Road in both the northbound and southbound direction between State Route 24 and Taylor Boulevard, the Delay Indexes in the Cumulative Year 2030 plus Project scenario were calculated during the a.m. and p.m. peak hours, and are summarized in Table XVIII. As noted in the table, Pleasant Hill Road will operate with an unacceptable peak hour peak direction Delay Index of over 2.0 for southbound traffic in the a.m. peak hour and northbound traffic in the p.m. peak hour under the Cumulative Year 2030 plus Project scenario. The addition of Project trips to Pleasant Hill Road would increase the peak hour peak direction Delay Index by approximately 0.41 for southbound traffic in the a.m. peak hour and northbound traffic in the p.m. peak hour under Cumulative Year 2030 plus Project conditions

Table XVII: Cumulative Year plus Project Delay Index - State Route 24 (Between St. Stephens Drive and I-680)

	2030 Volume		*Travel Time (minutes)*		*Delay Index*		*Density (vehicles/mile/lane)*		*LOS*	
Peak Hour	*East-bound*	*West-bound*	*East-bound*	*West-bound*	*East-bound*	*West-bound*	*East-bound*	*West-bound*	*East-bound*	*West-bound*
A.M.	8,554	11,406	7.84	18.62	1.529	**3.509**	31.3	>45.0	D	F
P.M.	11,942	9,561	20.56	9.92	**4.012**	1.870	>45.0	38.1	F	E

Table XVIII: Cumulative Year 2030 plus Project Delay Index - Pleasant Hill Road (Between State Route 24 and Taylor Boulevard)

	2030 Volume		*Travel Time (minutes)*		*Delay Index*	
Peak Hour	***Northbound***	***Southbound***	***Northbound***	***Southbound***	***Northbound***	***Southbound***
A.M.	1,991	2,936	3.19	10.78	1.108	**3.743**
P.M.	3,015	2,455	11.88	7.18	**4.125**	2.493

It should be noted that the Delay Index results provided above are substantially higher than the 2040 baseline projections provided in the 2017 Lamorinda Action Plan, as discussed under Cumulative conditions. The above Pleasant Hill Road Delay Index for 2030, contained in the original Project FEIR in 2011, showed substantial impacts. However, the more recent 2040 Delay Index contained in the 2017 Lamorinda Action Plan shows no Delay Index deficiencies along Pleasant Hill Road. The earlier calculation was based on overly conservative assumptions. Therefore, this impact is considered *less than significant.*

References

1. *Highway Capacity Manual 2010, Transportation Research Board*
2. *California Manual of Uniform Traffic Control Devices (California MUTCD), 2014*
3. *Trip Generation, 8th Edition, Institute of Transportation Engineers*
4. *Highway Design Manual, Caltrans*
5. *Parking Generation, 4th Edition, , Institute of Transportation Engineers*
6. *General Plan, City of Lafayette*
7. *Final Lamorinda Action Plan Update, DKS Associates, September 2017*
8. *Bikeways Master Plan, City of Lafayette*
9. *Master Walkways Plan, City of Lafayette*
10. *Downtown Lafayette Specific Plan EIR, City of Lafayette*
11. *2008 BART Station Profile Study, Bay Area Rapid Transit District*
12. *2015 BART Station Profile Study, Bay Area Rapid Transit District*
13. *2016 Central Contra Costa County Transportation Authority Short Range Transit Plan (SRTP)*
14. *2017 Contra Costa Countywide Transportation Plan (CTP)*
15. *Municipal Code, Chapter 6-6, Off-Street Parking, City of Lafayette*
16. *The Terraces of Lafayette Traffic Impact Study, Abrams Associates, Inc., June 30,2011*

Appendix A – Level of Service Methodology

APPENDIX A
LEVEL OF SERVICE

The description and procedures for calculating capacity and level of service (LOS) are found in Transportation Research Board, Highway Capacity Manual (HCM) 2010. HCM 2010 represents the latest research on capacity and quality of service for transportation facilities.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. LOS is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst. The criteria for the automobile mode are different from those for the nonautomobile modes. Specifically, the automobile-mode criteria are based on performance measures that are field measurable and perceivable by travelers. The criteria for the nunautomobile modes are based on scores reported by travelers indicating their perception of service quality.

Automobile Mode – Signalized Intersection

LOS can be characterized for the entire intersection, each intersection approach, and each lane group. Control delay alone is used to characterize LOS for the entire intersection or an approach. Control delay and volume-to-capacity ratio are used to characterize LOS for a lane group. Delay quantifies the increase in travel time due to traffic signal control. It is also a surrogate measure of driver discomfort and fuel consumption. The volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group. The following paragraphs describe each LOS.

LOS A describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

LOS B describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

LOS C describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.

LOS D describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

LOS E describes operations with control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

LOS F describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater that 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

A lane group can incur a delay less than 80 s/veh when the volume-to-capacity ratio exceeds 1.0. This condition typically occurs when the cycle length is short, the signal progression is favorable, or both. As a result, both the delay and volume-to-capacity ratio are considered when lane group LOS is established. A ratio of 1.0 or more indicates that cycle capacity is fully utilized and represents failure from a capacity perspective (just as delay in excess of 80 s/veh represents failure from a delay perspective).

Table 1 lists the LOS thresholds established for the automobile mode at a signalized intersection.

Table 1: LOS Criteria - Automobile Mode

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio[1]	
	v/c ≤ 1.0	v/c > 1.0
≤ 10	A	F
> 10-20	B	F
> 20-35	C	F
> 35-55	D	F
> 55-80	E	F
> 80	F	F

Note: [1] For approach-based and intersectionwide assessments, LOS is defined solely by control delay
Source: HCM 2010, Transportation Research Board

Nonautomobile Modes

Historically, the HCM has used a single performance measure as the basis for defining LOS. However, research documented in Chapter 5, Quality and Level-of-Service Concepts, indicates that travelers consider a wide variety of factors in assessing the quality of service provided to them. Some of these factors can be described as performance measures (e.g., speed) and others can be described as basic descriptors of the intersection character (e.g., crosswalk width). The methodology for evaluating each mode provides a procedure for mathematically combining these factors into a score. This score is then used to determine the LOS that is provided.

Table 2 lists the range of scores associated with each LOS for the pedestrian and bicycle travel modes. The association between score value and LOS is based on traveler perception research. Travelers were asked to rate the quality of service associated with a specific trip through a signalized intersection. The letter A was used to represent the best quality of service, and the letter F was used to represent the worst quality of service. “Best” and “worst” were left undefined, allowing respondents to identify the best and worst conditions on the basis of their traveling experience and perception of service quality.

Table 2: LOS Criteria - Pedestrian and Bicycle Modes

LOS	LOS Score
A	≤ 2.00
B	> 2.00-2.75
C	> 2.75-3.50
D	> 3.50-4.25
E	> 4.25-5.00
F	> 5.00

Source: HCM 2010, Transportation Research Board

Pedestrian Mode

Intersection performance is separately evaluated for each crosswalk and intersection corner with this methodology. A crosswalk is assumed to exist across each intersection leg unless crossing is specifically prohibited by local ordinance (and signed to this effect). The pedestrian methodology is applied through a series of five steps that determine the pedestrian LOS for a crosswalk and associated corners:

1. Determine Street Corner Circulation Area
2. Determine Crosswalk Circulation Area
3. Determine Pedestrian Delay
4. Determine Pedestrian LOS Score for Intersection
5. Determine LOS

Bicycle Mode

Intersection performance is evaluated separately for each intersection approach. The bicycle is assumed to travel in the street (possibly in a bicycle lane) and in the same direction as akjacent motorized vehicles. The methodology is focused on analyzing signalized intersection performance from the bicyclist point of view. The bicycle methodology is applied through a series of three steps that determine the bicycle LOS for an intersection approach:

1. Determine Bicycle Delay
2. Determine Bicycle LOS Score for Intersection
3. Determine LOS

Two-Way Stop Controlled Intersection

LOS for a two-way stop control (TWSC) intersection is determined by the computed or measured control delay. For motor vehicles, LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns by using criteria in Table 3. LOS is not defined for the intersection as a whole or for major-street approaches for three primary reasons: (*a*) major-street through vehicles are assumed to experience zero delay; (*b*) the disproportionate number of major-street through vehicles at a typical TWSC intersection skews the weighted average of all movements, resulting in a very low overall average delay for all vehicles; and (*c*) the resulting low delay can mask important LOS deficiencies for minor movements. As Table 3 notes, LOS F is assigned to the movement if the volume-to-capacity ratio for the movement exceeds 1.0, regardless of the control delay.

The LOS criteria for TWSC intersections differ from that of signalized intersections, primarily because user perceptions differ among transportation facility types. The expectation is that a signalized intersection is designed to carry higher traffic volumes and will present greater delay than an unsignalized intersection. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable than they are at signals, which can reduce user's delay tolerance.

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio[1]	
	v/c ≤ 1.0	v/c > 1.0
0-10	A	F
> 10-15	B	F
> 15-25	C	F
> 25-35	D	F
> 35-50	E	F
> 50	F	F

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

Appendix B – Traffic Count Data Sheets

Intersection No: 1
Location: Pleasant Hill Road at Rancho View Drive
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Tuesday, May 10, 2011
Collected By: Olga & Charlie

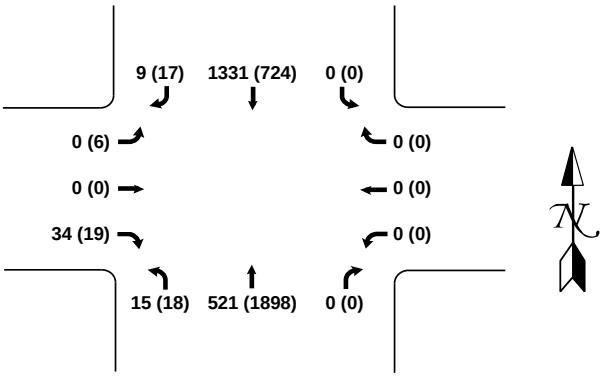
PLEASANT HILL ROAD AT RANCHO VIEW DRIVE INTERSECTION TURNING MOVEMENT SUMMARY

Location: Pleasant Hill Road at Rancho View Drive							**Date:** Tuesday, May 10, 2011						**AM**
1	Pleasant Hill Road SOUTHBOUND			Rancho View Drive WESTBOUND			Pleasant Hill Road NORTHBOUND			Rancho View Drive EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	504	0	0	0	0	0	104	3	13	0	0	624
7:45 AM	4	282	0	0	0	0	0	164	5	6	0	0	461
8:00 AM	1	273	0	0	0	0	0	116	2	5	0	0	397
8:15 AM	4	272	0	0	0	0	0	137	5	10	0	0	428
8:30 AM	5	266	0	0	0	0	0	124	3	1	0	0	399
8:45 AM	2	233	0	0	0	0	0	97	3	8	0	0	343
Total	16	1830	0	0	0	0	0	742	21	43	0	0	2652

Location: Pleasant Hill Road at Rancho View Drive							**Date:** Tuesday, May 10, 2011						**PM**
1	Pleasant Hill Road SOUTHBOUND			Rancho View Drive WESTBOUND			Pleasant Hill Road NORTHBOUND			Rancho View Drive EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	2	167	0	0	0	0	0	460	0	2	0	0	631
4:45 PM	3	173	0	0	0	0	0	463	3	4	0	1	647
5:00 PM	3	179	0	0	0	0	0	471	6	4	0	2	665
5:15 PM	5	189	0	0	0	0	0	484	5	6	0	2	691
5:30 PM	6	183	0	0	0	0	0	480	4	5	0	1	679
5:45 PM	4	178	0	0	0	0	0	475	3	3	0	1	664
Total	23	1069	0	0	0	0	0	2833	21	24	0	7	3977

PEAK HOUR VOLUMES													
Location: Pleasant Hill Road at Rancho View Drive							**Date:** Tuesday, May 10, 2011						**AM**
1	Pleasant Hill Road SOUTHBOUND			Rancho View Drive WESTBOUND			Pleasant Hill Road NORTHBOUND			Rancho View Drive EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
7:30 AM	0	504	0	0	0	0	0	104	3	13	0	0	624
7:45 AM	4	282	0	0	0	0	0	164	5	6	0	0	461
8:00 AM	1	273	0	0	0	0	0	116	2	5	0	0	397
8:15 AM	4	272	0	0	0	0	0	137	5	10	0	0	428
Total	9	1331	0	0	0	0	0	521	15	34	0	0	1910

PEAK HOUR VOLUMES													
Location: Pleasant Hill Road at Rancho View Drive							**Date:** Tuesday, May 10, 2011						**PM**
1	Pleasant Hill Road SOUTHBOUND			Rancho View Drive WESTBOUND			Pleasant Hill Road NORTHBOUND			Rancho View Drive EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
4:45 PM	3	173	0	0	0	0	0	463	3	4	0	1	647
5:00 PM	3	179	0	0	0	0	0	471	6	4	0	2	665
5:15 PM	5	189	0	0	0	0	0	484	5	6	0	2	691
5:30 PM	6	183	0	0	0	0	0	480	4	5	0	1	679
Total	17	724	0	0	0	0	0	1898	18	19	0	6	2682



Type of peak hour being reported: Intersection Peak

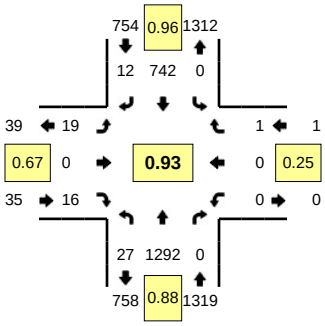
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- Rancho View Dr

QC JOB #: 10687121

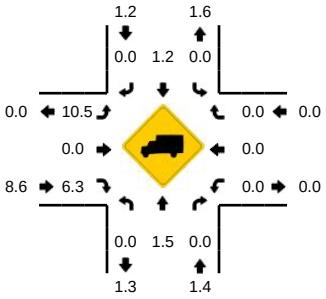
CITY/STATE: Lafayette, CA

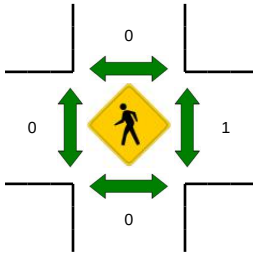
DATE: Thu, Dec 01 2011

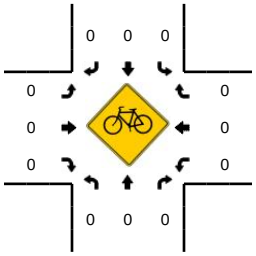


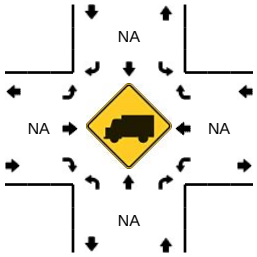
Peak-Hour: 3:00 PM -- 4:00 PM

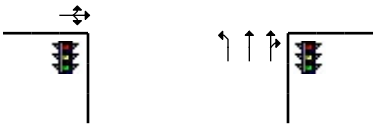
Peak 15-Min: 3:45 PM -- 4:00 PM

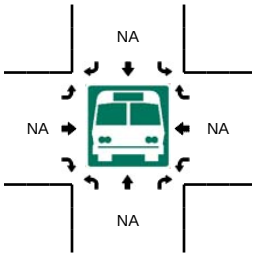












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Rancho View Dr (Eastbound)				Rancho View Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	7	178	0	0	0	159	5	0	2	0	5	0	0	0	0	0	356	
2:15 PM	3	240	1	1	0	178	4	0	2	0	7	0	0	0	0	0	436	
2:30 PM	5	265	0	0	0	193	6	0	3	0	5	0	0	0	0	0	477	
2:45 PM	3	222	0	0	0	179	4	1	2	0	8	0	0	0	0	0	419	1688
3:00 PM	8	264	0	0	0	186	8	0	7	0	9	0	0	0	0	0	482	1814
3:15 PM	7	332	0	0	0	183	2	0	5	0	2	0	0	0	1	0	532	1910
3:30 PM	5	329	0	0	0	186	0	0	4	0	3	0	0	0	0	0	527	1960
3:45 PM	7	367	0	0	0	187	2	0	3	0	2	0	0	0	0	0	568	2109

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	1468	0	0	0	748	8	0	12	0	8	0	0	0	0	0	2272
Heavy Trucks	0	12	0		0	8	0		4	0	0		0	0	0		24
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Intersection No: 1
Location: Pleasant Hill Road at Green Valley Drive
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Wednesday, May 18, 2011
Collected By: Olga & Charlie

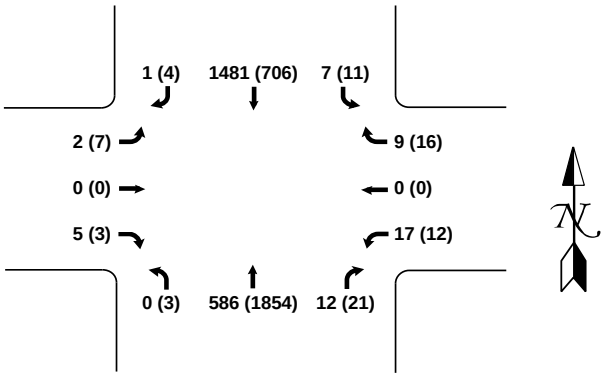
PLEASANT HILL ROAD AT GREEN VALLEY DRIVE INTERSECTION TURNING MOVEMENT SUMMARY

Location: Pleasant Hill Road at Green Valley Drive							**Date:** Wednesday, May 18, 2011						**AM**
1	Pleasant Hill Road SOUTHBOUND			Green Valley Drive WESTBOUND			Pleasant Hill Road NORTHBOUND			Green Valley Drive EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	361	2	2	0	3	3	140	0	1	0	1	513
7:30 AM	0	391	3	4	0	6	4	149	0	2	0	0	559
7:45 AM	1	366	1	3	0	4	4	153	0	1	0	1	534
8:00 AM	0	364	2	1	0	5	3	143	0	1	0	1	520
8:15 AM	0	360	1	1	0	2	1	141	0	1	0	0	507
8:30 AM	0	358	2	1	0	1	1	138	0	1	0	1	503
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	2200	11	12	0	21	16	864	0	7	0	4	3136

Location: Pleasant Hill Road at Green Valley Drive							**Date:** Wednesday, May 18, 2011						**PM**
1	Pleasant Hill Road SOUTHBOUND			Green Valley Drive WESTBOUND			Pleasant Hill Road NORTHBOUND			Green Valley Drive EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	1	163	0	2	0	1	2	445	0	0	0	2	616
4:45 PM	0	169	1	3	0	2	5	451	0	0	0	1	632
5:00 PM	1	179	3	5	0	3	4	463	1	1	0	3	663
5:15 PM	2	176	4	4	0	4	7	469	1	1	0	1	669
5:30 PM	1	182	3	4	0	3	5	471	1	1	0	2	673
5:45 PM	1	165	1	2	0	2	5	448	2	1	0	1	628
Total	6	1034	12	20	0	15	28	2747	5	4	0	10	3881

PEAK HOUR VOLUMES													
Location: Pleasant Hill Road at Green Valley Drive							**Date:** Wednesday, May 18, 2011						**AM**
1	Pleasant Hill Road SOUTHBOUND			Green Valley Drive WESTBOUND			Pleasant Hill Road NORTHBOUND			Green Valley Drive EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
7:15 AM	0	391	3	4	0	6	4	149	0	2	0	0	559
7:30 AM	1	366	1	3	0	4	4	153	0	1	0	1	534
7:45 AM	0	364	2	1	0	5	3	143	0	1	0	1	520
8:00 AM	0	360	1	1	0	2	1	141	0	1	0	0	507
Total	1	1481	7	9	0	17	12	586	0	5	0	2	2120

PEAK HOUR VOLUMES													
Location: Pleasant Hill Road at Green Valley Drive							**Date:** Wednesday, May 18, 2011						**PM**
1	Pleasant Hill Road SOUTHBOUND			Green Valley Drive WESTBOUND			Pleasant Hill Road NORTHBOUND			Green Valley Drive EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
4:45 PM	0	169	1	3	0	2	5	451	0	0	0	1	632
5:00 PM	1	179	3	5	0	3	4	463	1	1	0	3	663
5:15 PM	2	176	4	4	0	4	7	469	1	1	0	1	669
5:30 PM	1	182	3	4	0	3	5	471	1	1	0	2	673
Total	4	706	11	16	0	12	21	1854	3	3	0	7	2637



Type of peak hour being reported: Intersection Peak

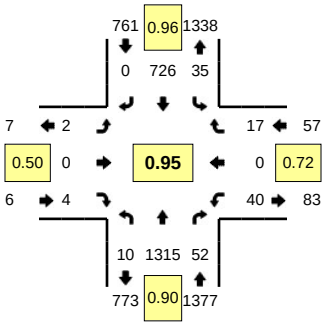
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- Greenvalley Dr

QC JOB #: 10687120

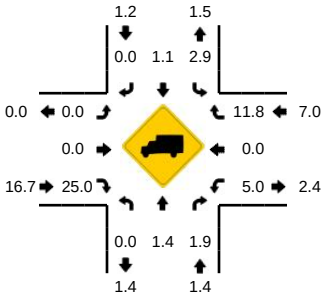
CITY/STATE: Lafayette, CA

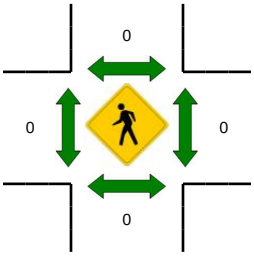
DATE: Thu, Dec 01 2011

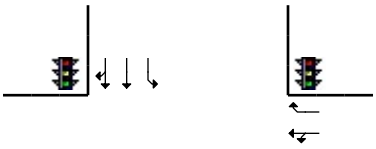


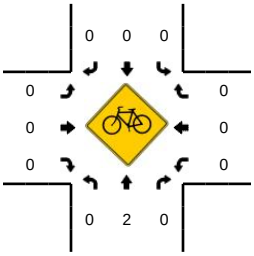
Peak-Hour: 3:00 PM -- 4:00 PM

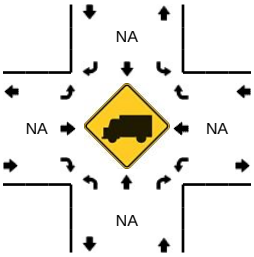
Peak 15-Min: 3:45 PM -- 4:00 PM

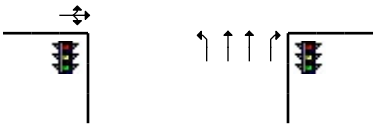


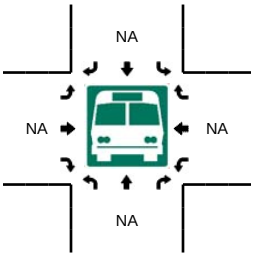












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Greenvalley Dr (Eastbound)				Greenvalley Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	2	171	5	0	4	152	0	6	0	0	0	0	9	0	7	0	356	
2:15 PM	1	248	20	1	1	187	0	0	2	0	3	0	10	0	6	0	479	
2:30 PM	0	248	9	0	4	194	0	2	1	0	7	0	17	0	7	0	489	
2:45 PM	2	218	11	1	3	176	1	3	0	1	1	0	8	0	4	0	429	1753
3:00 PM	4	285	14	1	5	189	0	0	0	0	1	0	14	0	3	0	516	1913
3:15 PM	0	318	15	0	8	175	0	2	1	0	1	0	7	0	6	0	533	1967
3:30 PM	1	342	15	0	5	191	0	2	1	0	2	0	10	0	5	0	574	2052
3:45 PM	2	370	8	2	13	171	0	0	0	0	0	0	9	0	3	0	578	2201

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	1480	32	8	52	684	0	0	0	0	0	0	36	0	12	0	2312
Heavy Trucks	0	12	0		4	4	0		0	0	0		4	0	0		24
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Intersection No: 3
Location: Pleasant Hill Road at Reliez Valley Rd
AM Start Time 7:15 AM
PM Start Time 4:00 PM
Date: Tuesday, May 17, 2011
Collected By: Charlie

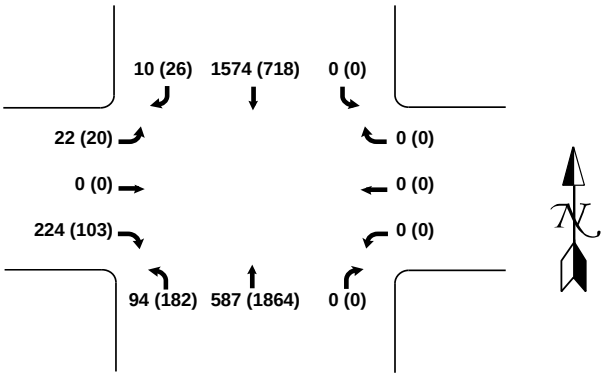
PLEASANT HILL ROAD AT RELIEZ VALLEY RD INTERSECTION TURNING MOVEMENT SUMMARY

Location: Pleasant Hill Road at Reliez Valley Rd							**Date:** Tuesday, May 17, 2011						**AM**
3	Pleasant Hill Road			Reliez Valley Rd			Pleasant Hill Road			Reliez Valley Rd			
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
7:15 AM	1	462						51	8	51		7	580
7:30 AM	2	497						93	5	74		9	680
7:45 AM	2	307						115	12	42		2	480
8:00 AM	5	308						109	17	57		4	500
8:15 AM	3	345						127	20	59		7	561
8:30 AM													0
8:45 AM													0
9:00 AM													0
Total	13	1919						495	62	283		29	2801

Location: Pleasant Hill Road at Reliez Valley Rd							**Date:** Tuesday, May 17, 2011						**PM**
3	Pleasant Hill Road			Reliez Valley Rd			Pleasant Hill Road			Reliez Valley Rd			
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
4:00 PM	9	172						400	24	27		3	635
4:15 PM	11	160						438	33	24		8	674
4:30 PM	6	135						477	39	26		4	687
4:45 PM	4	164						466	44	29		2	709
5:00 PM	5	159						460	52	26		7	709
5:15 PM	9	179						440	45	22		1	696
5:30 PM	4	182						493	48	27		5	759
5:45 PM	8	198						471	37	28		7	749
Total	56	1349						3645	322	209		37	5618

PEAK HOUR VOLUMES													
Location: Pleasant Hill Road at Reliez Valley Rd							**Date:** Tuesday, May 17, 2011						**AM**
3	Pleasant Hill Road			Reliez Valley Rd			Pleasant Hill Road			Reliez Valley Rd			
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
7:15 AM	1	462						105	21	51		7	647
7:30 AM	2	497						144	18	74		9	744
7:45 AM	2	307						178	25	42		2	556
8:00 AM	5	308						160	30	57		4	564
Total	10	1574	0	0	0	0	0	587	94	224	0	22	2511

PEAK HOUR VOLUMES													
Location: Pleasant Hill Road at Reliez Valley Rd							**Date:** Tuesday, May 17, 2011						**PM**
3	Pleasant Hill Road			Reliez Valley Rd			Pleasant Hill Road			Reliez Valley Rd			
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
5:00 PM	5	159						460	52	26		7	709
5:15 PM	9	179						440	45	22		1	696
5:30 PM	4	182						493	48	27		5	759
5:45 PM	8	198						471	37	28		7	749
Total	26	718	0	0	0	0	0	1864	182	103	0	20	2913



Type of peak hour being reported: Intersection Peak

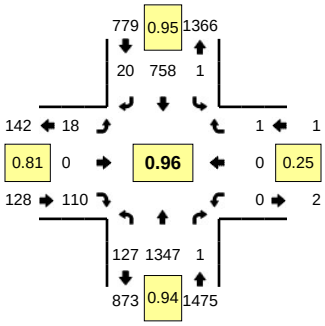
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- Releiz Valley Rd

QC JOB #: 10687119

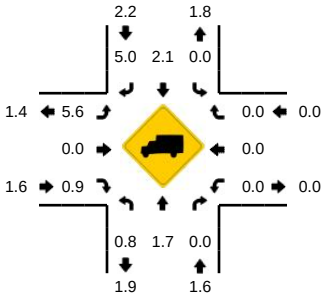
CITY/STATE: Lafayette, CA

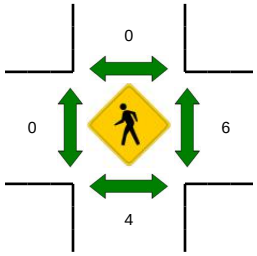
DATE: Thu, Dec 01 2011

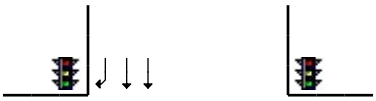


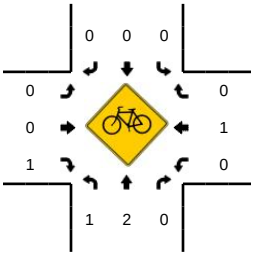
Peak-Hour: 3:00 PM -- 4:00 PM

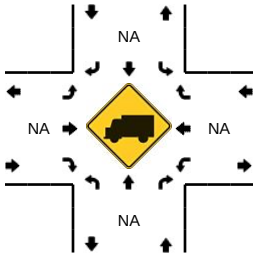
Peak 15-Min: 3:15 PM -- 3:30 PM

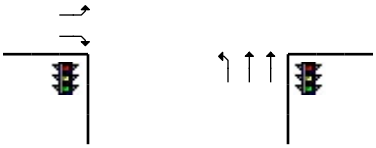


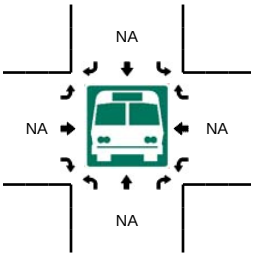












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Releiz Valley Rd (Eastbound)				Releiz Valley Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	21	185	0	0	0	154	4	0	3	0	17	0	0	0	0	0	384	
2:15 PM	30	245	0	0	0	195	6	0	3	0	24	0	0	0	1	0	504	
2:30 PM	32	274	0	2	0	206	2	0	4	0	28	0	0	0	0	0	548	
2:45 PM	41	228	0	0	0	187	3	0	2	0	40	0	0	0	0	0	501	1937
3:00 PM	34	287	1	1	0	186	6	0	2	0	21	0	0	0	0	0	538	2091
3:15 PM	40	339	0	0	0	193	3	0	9	0	34	0	0	0	1	0	619	2206
3:30 PM	26	349	0	4	1	199	6	0	2	0	23	0	0	0	0	0	610	2268
3:45 PM	22	372	0	0	0	180	5	0	5	0	32	0	0	0	0	0	616	2383

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	160	1356	0	0	0	772	12	0	36	0	136	0	0	0	4	0	2476
Heavy Trucks	4	28	0		0	28	0		4	0	4		0	0	0		68
Pedestrians		8				0				0				12			20
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

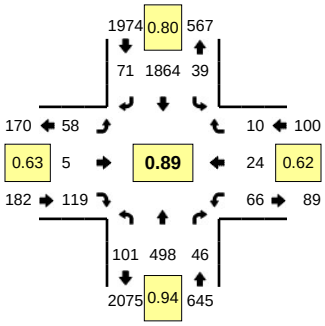
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- Springhill Rd

QC JOB #: 10698404

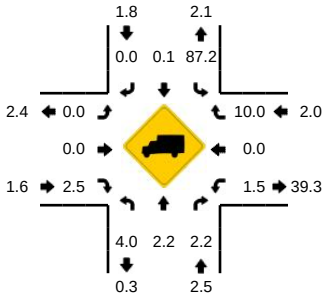
CITY/STATE: Lafayette, CA

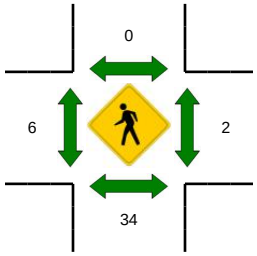
DATE: Tue, Jan 10 2012

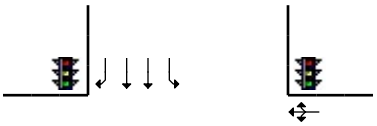


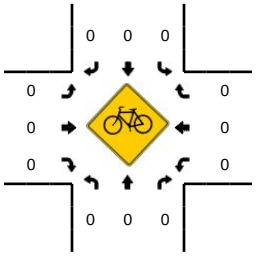
Peak-Hour: 8:00 AM -- 9:00 AM

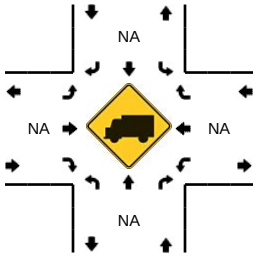
Peak 15-Min: 8:15 AM -- 8:30 AM

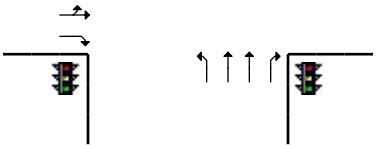


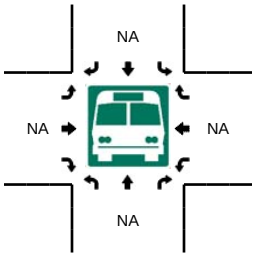












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Springhill Rd (Eastbound)				Springhill Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	11	43	4	2	10	550	2	0	0	0	6	0	6	0	0	0	634	
7:15 AM	9	55	3	1	3	680	5	0	1	1	12	0	4	1	3	0	778	
7:30 AM	13	100	4	3	10	538	13	1	6	0	40	0	13	1	0	0	742	
7:45 AM	22	126	10	16	7	359	12	0	7	2	52	0	20	4	3	0	640	2794
8:00 AM	27	125	15	9	7	436	18	1	6	1	22	0	12	6	1	0	686	2846
8:15 AM	17	136	23	9	8	451	39	0	31	3	56	0	22	18	1	0	814	2882
8:30 AM	16	131	4	6	16	479	7	0	16	1	28	0	10	0	4	0	718	2858
8:45 AM	15	106	4	2	7	498	7	0	5	0	13	0	22	0	4	0	683	2901

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	68	544	92	36	32	1804	156	0	124	12	224	0	88	72	4	0	3256
Heavy Trucks	8	16	0		28	4	0		0	0	4		4	0	0		64
Pedestrians		76				0				20				4			100
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 1/12/2012 3:06 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

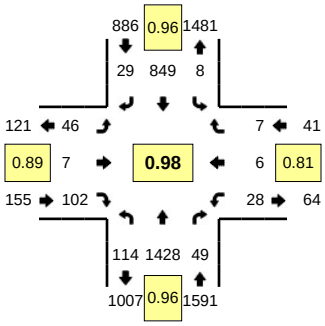
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- Springhill Rd

QC JOB #: 10687118

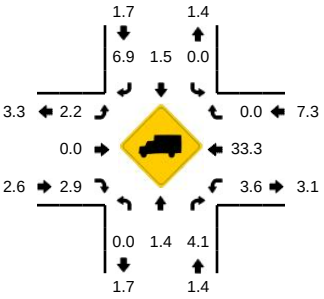
CITY/STATE: Lafayette, CA

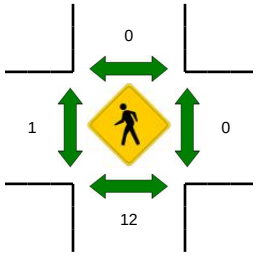
DATE: Thu, Dec 01 2011

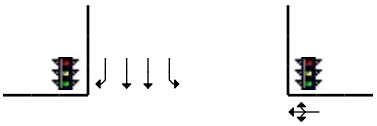


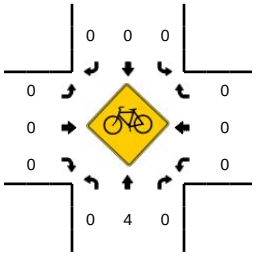
Peak-Hour: 3:00 PM -- 4:00 PM

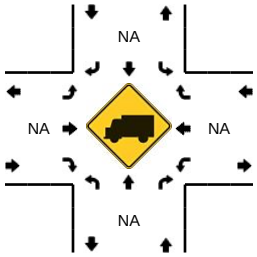
Peak 15-Min: 3:45 PM -- 4:00 PM

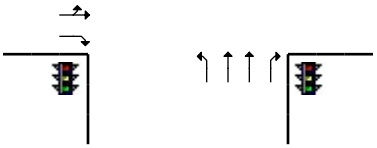


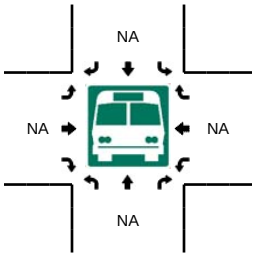












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Springhill Rd (Eastbound)				Springhill Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	17	201	4	5	1	163	9	0	1	0	10	0	15	0	1	0	427	
2:15 PM	40	276	3	35	2	178	20	0	6	0	21	0	5	1	1	0	588	
2:30 PM	32	276	18	22	1	218	21	0	23	0	36	0	12	2	3	0	664	
2:45 PM	42	240	9	5	3	210	23	0	24	1	33	0	10	3	5	0	608	2287
3:00 PM	25	312	12	11	1	203	10	0	16	3	34	0	8	2	2	0	639	2499
3:15 PM	23	357	11	8	2	220	5	0	13	0	26	0	7	0	2	0	674	2585
3:30 PM	19	373	19	5	4	217	6	0	7	1	19	0	4	2	2	0	678	2599
3:45 PM	19	386	7	4	1	209	8	0	10	3	23	0	9	2	1	0	682	2673

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	76	1544	28	16	4	836	32	0	40	12	92	0	36	8	4	0	2728
Heavy Trucks	0	16	0		0	12	0		4	0	4		4	0	0		40
Pedestrians		4				0				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Intersection No: 4
Location: Pleasant Hill Road at Springhill Road
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Tuesday, September 28, 2010
Collected By: Olga & Charlie

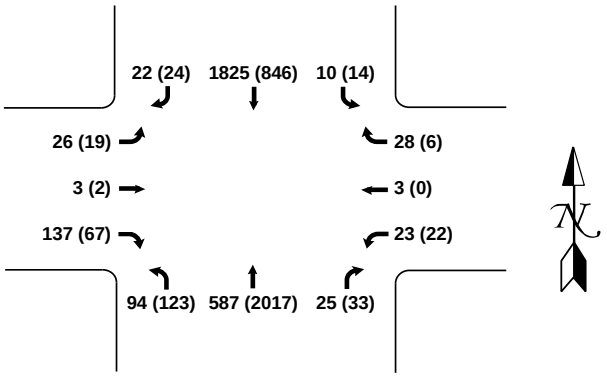
PLEASANT HILL ROAD AT SPRINGHILL ROAD INTERSECTION TURNING MOVEMENT SUMMARY

Location: Pleasant Hill Road at Springhill Road							**Date:** Tuesday, September 28, 2010						**AM**
4	Pleasant Hill Road SOUTHBOUND			Springhill Road WESTBOUND			Pleasant Hill Road NORTHBOUND			Springhill Road EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	3	455	1	5	1	2	2	138	17	21	1	4	650
7:30 AM	5	471	5	7	0	3	4	143	29	39	0	6	712
7:45 AM	7	459	2	7	0	5	5	157	25	32	0	8	707
8:00 AM	8	450	2	8	2	8	9	148	21	35	3	9	703
8:15 AM	2	445	1	6	1	7	7	139	19	31	0	3	661
8:30 AM	1	436	1	2	0	6	2	132	14	29	0	4	627
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	26	2716	12	35	4	31	29	857	125	187	4	34	4060

Location: Pleasant Hill Road at Springhill Road							**Date:** Tuesday, September 28, 2010						**PM**
4	Pleasant Hill Road SOUTHBOUND			Springhill Road WESTBOUND			Pleasant Hill Road NORTHBOUND			Springhill Road EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
4:00 PM	5	195	3	2	0	5	9	382	18	22	0	5	646
4:15 PM	4	174	2	2	0	2	13	416	20	27	0	5	665
4:30 PM	10	173	2	1	0	11	7	438	24	16	0	5	687
4:45 PM	11	183	1	1	0	9	7	480	24	31	0	16	763
5:00 PM	7	193	2	0	0	8	11	502	37	21	1	4	786
5:15 PM	8	220	2	4	0	5	10	527	30	19	1	7	833
5:30 PM	2	210	4	2	0	6	7	477	23	12	0	5	748
5:45 PM	7	223	6	0	0	3	5	511	33	15	0	3	806
Total	54	1571	22	12	0	49	69	3733	209	163	2	50	5934

PEAK HOUR VOLUMES													
Location: Pleasant Hill Road at Springhill Road							**Date:** Tuesday, September 28, 2010						**AM**
4	Pleasant Hill Road SOUTHBOUND			Springhill Road WESTBOUND			Pleasant Hill Road NORTHBOUND			Springhill Road EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
7:30 AM	5	471	5	7	0	3	4	143	29	39	0	6	712
7:45 AM	7	459	2	7	0	5	5	157	25	32	0	8	707
8:00 AM	8	450	2	8	2	8	9	148	21	35	3	9	703
8:15 AM	2	445	1	6	1	7	7	139	19	31	0	3	661
Total	22	1825	10	28	3	23	25	587	94	137	3	26	2783

PEAK HOUR VOLUMES													
Location: Pleasant Hill Road at Springhill Road							**Date:** Tuesday, September 28, 2010						**PM**
4	Pleasant Hill Road SOUTHBOUND			Springhill Road WESTBOUND			Pleasant Hill Road NORTHBOUND			Springhill Road EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
5:00 PM	7	193	2	0	0	8	11	502	37	21	1	4	786
5:15 PM	8	220	2	4	0	5	10	527	30	19	1	7	833
5:30 PM	2	210	4	2	0	6	7	477	23	12	0	5	748
5:45 PM	7	223	6	0	0	3	5	511	33	15	0	3	806
Total	24	846	14	6	0	22	33	2017	123	67	2	19	3173



Type of peak hour being reported: Intersection Peak

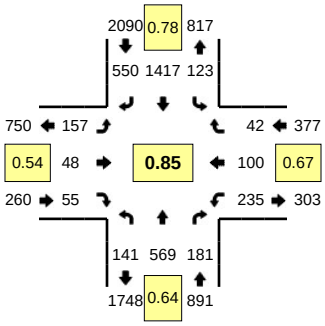
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- Deer Hill Rd/Stanley Blvd

QC JOB #: 10687110

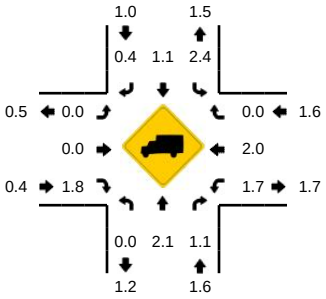
CITY/STATE: Lafayette, CA

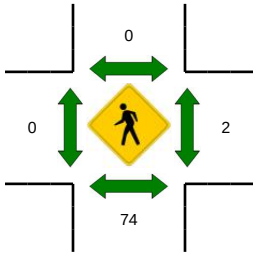
DATE: Thu, Dec 01 2011

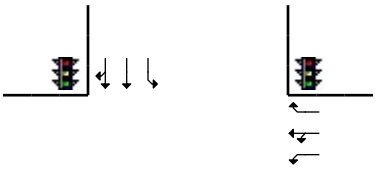


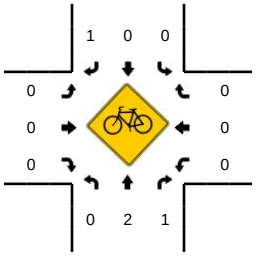
Peak-Hour: 7:15 AM -- 8:15 AM

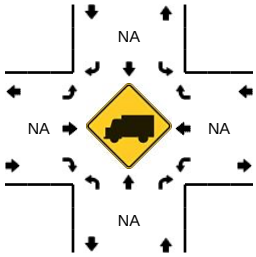
Peak 15-Min: 7:45 AM -- 8:00 AM

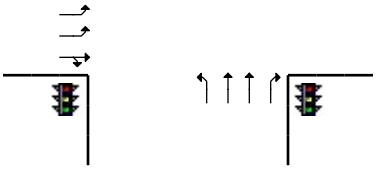


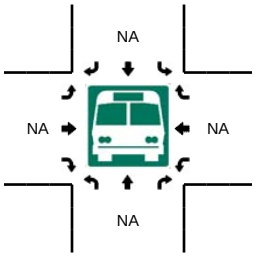












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Deer Hill Rd/Stanley Blvd (Eastbound)				Deer Hill Rd/Stanley Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	7	59	5	0	4	357	93	2	16	5	0	0	21	12	6	0	587	
7:15 AM	11	85	20	2	17	486	163	4	21	4	0	0	24	11	4	0	852	
7:30 AM	24	139	42	9	21	342	143	24	34	19	12	0	56	23	13	0	901	
7:45 AM	26	226	101	21	17	251	115	20	77	19	40	0	98	38	11	0	1060	3400
8:00 AM	39	119	18	9	19	338	129	1	25	6	3	0	57	28	14	0	805	3618
8:15 AM	31	120	26	8	30	395	120	0	43	4	10	0	31	7	16	0	841	3607
8:30 AM	25	93	19	6	26	303	90	0	40	6	13	0	38	12	15	0	686	3392
8:45 AM	30	126	27	7	30	312	106	1	38	10	14	0	45	10	6	0	762	3094

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	104	904	404	84	68	1004	460	80	308	76	160	0	392	152	44	0	4240
Heavy Trucks	0	16	0		12	16	0		0	0	0		12	4	0		60
Pedestrians		236				0				0				0			236
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

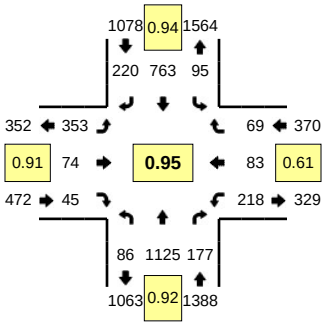
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- Deer Hill Rd/Stanley Blvd

QC JOB #: 10687112

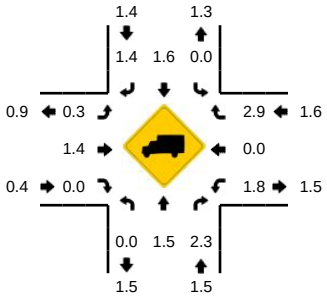
CITY/STATE: Lafayette, CA

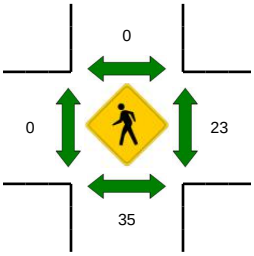
DATE: Thu, Dec 01 2011

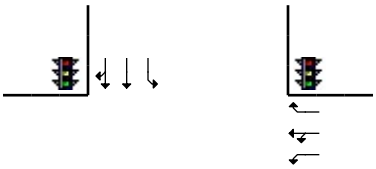


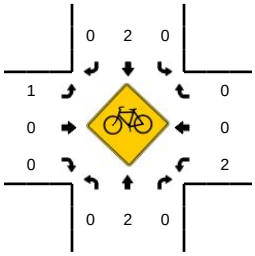
Peak-Hour: 3:00 PM -- 4:00 PM

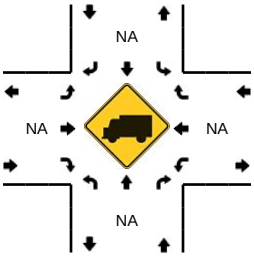
Peak 15-Min: 3:15 PM -- 3:30 PM

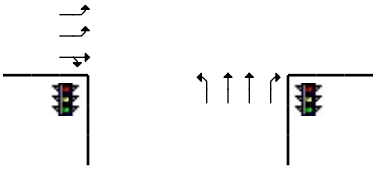


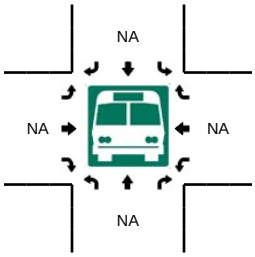












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Deer Hill Rd/Stanley Blvd (Eastbound)				Deer Hill Rd/Stanley Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	8	154	30	8	16	147	39	4	54	6	3	0	36	10	11	0	526	
2:15 PM	7	230	22	9	16	152	57	4	69	11	7	0	87	34	31	0	736	
2:30 PM	9	209	24	9	24	159	74	14	75	6	6	0	36	6	23	0	674	
2:45 PM	14	218	28	12	26	189	81	10	66	17	10	0	32	10	23	0	736	2672
3:00 PM	11	249	52	10	23	201	61	6	93	20	8	0	45	23	21	0	823	2969
3:15 PM	10	249	52	9	16	195	63	7	96	17	17	0	91	33	14	0	869	3102
3:30 PM	17	301	38	12	17	180	55	2	85	17	11	0	48	13	17	0	813	3241
3:45 PM	11	326	35	6	22	187	41	2	79	20	9	0	34	14	17	0	803	3308

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	40	996	208	36	64	780	252	28	384	68	68	0	364	132	56	0	3476
Heavy Trucks	0	20	4		0	24	8		4	0	0		12	0	0		72
Pedestrians		48				0				0				36			84
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

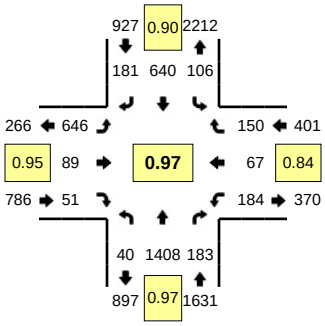
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- Deer Hill Rd/Stanley Blvd

QC JOB #: 10687111

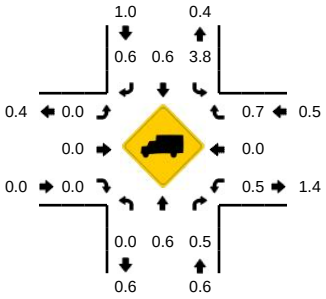
CITY/STATE: Lafayette, CA

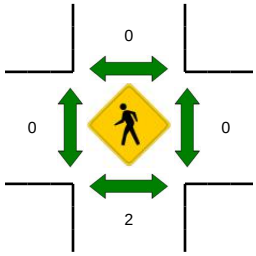
DATE: Thu, Dec 01 2011

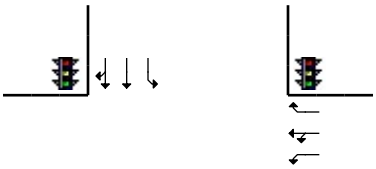


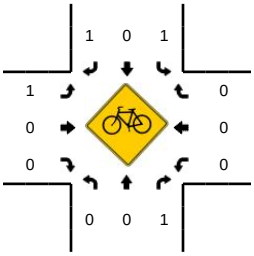
Peak-Hour: 4:45 PM -- 5:45 PM

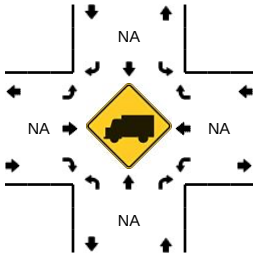
Peak 15-Min: 5:30 PM -- 5:45 PM

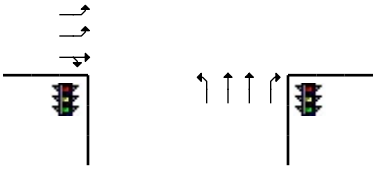


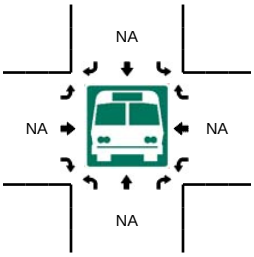












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Deer Hill Rd/Stanley Blvd (Eastbound)				Deer Hill Rd/Stanley Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	10	379	36	12	15	134	42	0	93	23	13	0	36	22	26	0	841	
4:15 PM	8	332	40	8	21	132	44	2	133	15	12	0	40	17	27	0	831	
4:30 PM	13	368	47	6	27	163	52	2	136	27	14	0	36	11	22	0	924	
4:45 PM	9	358	57	9	23	145	48	3	138	22	15	0	42	15	22	0	906	3502
5:00 PM	3	359	38	5	21	149	40	2	175	17	14	0	36	20	38	0	917	3578
5:15 PM	3	325	46	4	28	176	54	3	160	28	11	0	57	14	48	0	957	3704
5:30 PM	3	366	42	4	26	170	39	0	173	22	11	0	49	18	42	0	965	3745
5:45 PM	2	382	33	6	17	155	53	1	131	18	6	0	34	16	28	0	882	3721

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	1464	168	16	104	680	156	0	692	88	44	0	196	72	168	0	3860
Heavy Trucks	0	0	0		4	0	0		0	0	0		0	0	4		8
Pedestrians		4				0				0				0			4
Bicycles	0	0	0		0	0	0		1	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Intersection No: 6
Location: Pleasant Hill Road at Mt Diablo Blvd
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Thursday, May 19, 2011
Collected By: Olga & Charlie

PLEASANT HILL ROAD AT MT DIABLO BLVD INTERSECTION TURNING MOVEMENT SUMMARY

Location: Pleasant Hill Road at Mt Diablo Blvd							**Date:** Thursday, May 19, 2011						**AM**
6	Pleasant Hill Road			Mt Diablo Blvd			Pleasant Hill Road			Mt Diablo Blvd			
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	119	113	0	0	0	0	89	151	48	9	43	42	614
7:30 AM	122	114	0	0	0	0	92	165	52	10	50	48	653
7:45 AM	130	120	0	0	0	0	97	167	56	17	57	51	695
8:00 AM	140	130	0	0	0	0	105	171	59	15	60	60	740
8:15 AM	136	128	0	0	0	0	102	165	57	18	49	53	708
8:30 AM	139	111	0	0	0	0	91	161	51	11	45	39	648
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	786	716	0	0	0	0	576	980	323	80	304	293	4058

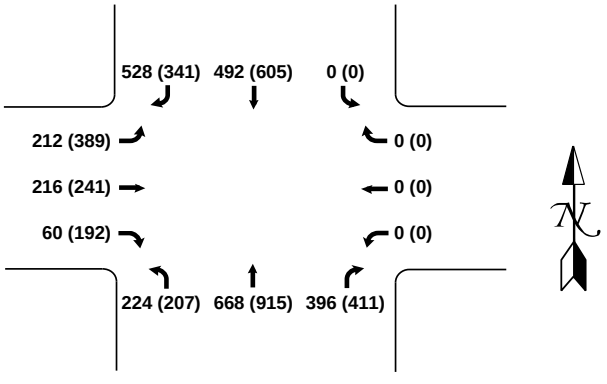
Location: Pleasant Hill Road at Mt Diablo Blvd							**Date:** Thursday, May 19, 2011						**PM**
6	Pleasant Hill Road			Mt Diablo Blvd			Pleasant Hill Road			Mt Diablo Blvd			
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	73	144	0	0	0	0	86	209	39	38	45	76	710
4:45 PM	75	143	0	0	0	0	98	215	41	39	55	88	754
5:00 PM	82	145	0	0	0	0	105	229	53	46	60	97	817
5:15 PM	89	161	0	0	0	0	102	235	54	51	65	96	853
5:30 PM	95	156	0	0	0	0	106	236	59	56	61	108	877
5:45 PM	82	142	0	0	0	0	84	217	48	39	48	93	753
Total	496	891	0	0	0	0	581	1341	294	269	334	558	4764

PEAK HOUR VOLUMES

Location: Pleasant Hill Road at Mt Diablo Blvd							**Date:** Thursday, May 19, 2011						**AM**
6	Pleasant Hill Road			Mt Diablo Blvd			Pleasant Hill Road			Mt Diablo Blvd			
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
7:30 AM	122	114	0	0	0	0	92	165	52	10	50	48	653
7:45 AM	130	120	0	0	0	0	97	167	56	17	57	51	695
8:00 AM	140	130	0	0	0	0	105	171	59	15	60	60	740
8:15 AM	136	128	0	0	0	0	102	165	57	18	49	53	708
Total	528	492	0	0	0	0	396	668	224	60	216	212	2796

PEAK HOUR VOLUMES

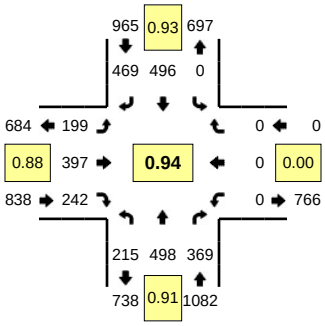
Location: Pleasant Hill Road at Mt Diablo Blvd							**Date:** Thursday, May 19, 2011						**PM**
6	Pleasant Hill Road			Mt Diablo Blvd			Pleasant Hill Road			Mt Diablo Blvd			
	SOUTHBOUND			WESTBOUND			NORTHBOUND			EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
4:45 PM	75	143	0	0	0	0	98	215	41	39	55	88	754
5:00 PM	82	145	0	0	0	0	105	229	53	46	60	97	817
5:15 PM	89	161	0	0	0	0	102	235	54	51	65	96	853
5:30 PM	95	156	0	0	0	0	106	236	59	56	61	108	877
Total	341	605	0	0	0	0	411	915	207	192	241	389	3301



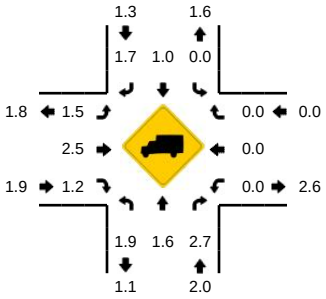
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

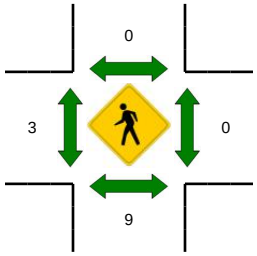
LOCATION: Pleasant Hill Rd -- Mt Diablo Blvd/SR 24 EB On Ramp | **QC JOB #:** 10687117

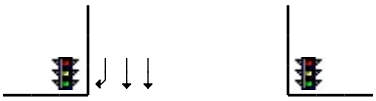
CITY/STATE: Lafayette, CA | **DATE:** Thu, Dec 01 2011

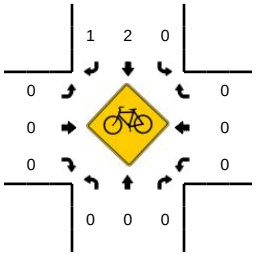


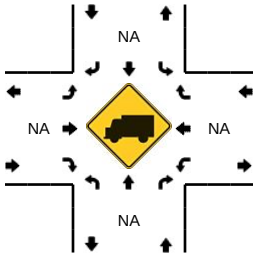
Peak-Hour: 3:00 PM -- 4:00 PM
Peak 15-Min: 3:15 PM -- 3:30 PM

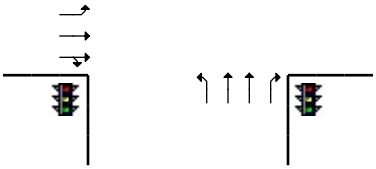


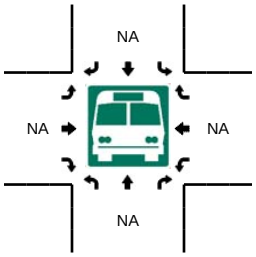












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Mt Diablo Blvd/SR 24 EB On Ramp (Eastbound)				Mt Diablo Blvd/SR 24 EB On Ramp (Westbound)				Ramp Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	58	91	66	0	0	97	97	0	43	74	44	0	0	0	0	0	570	
2:15 PM	56	91	62	0	0	128	131	0	42	110	61	0	0	0	0	0	681	
2:30 PM	51	91	81	0	0	97	101	0	34	117	61	0	0	0	0	0	633	
2:45 PM	66	105	81	0	0	113	111	0	42	78	63	0	0	0	0	0	659	2543
3:00 PM	64	121	84	0	0	111	122	0	57	80	61	0	0	0	0	0	700	2673
3:15 PM	50	125	97	0	0	149	111	0	51	120	66	0	0	0	0	0	769	2761
3:30 PM	47	149	105	0	0	115	122	0	45	110	51	0	0	0	0	0	744	2872
3:45 PM	54	103	83	0	0	121	114	0	46	87	64	0	0	0	0	0	672	2885

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	200	500	388	0	0	596	444	0	204	480	264	0	0	0	0	0	3076
Heavy Trucks	4	8	12		0	8	16		4	16	4		0	0	0		72
Pedestrians		24				0				8				0			32
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

Intersection No: 7
Location: Pleasant Hill Road at Old Tunnel Road
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Wednesday, May 11, 2011
Collected By: Olga & Charlie

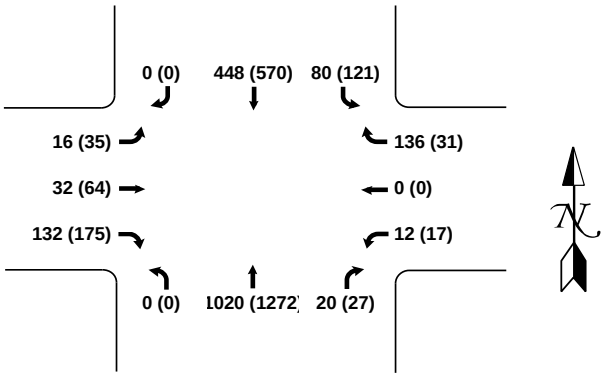
PLEASANT HILL ROAD AT OLD TUNNEL ROAD INTERSECTION TURNING MOVEMENT SUMMARY

Location: Pleasant Hill Road at Old Tunnel Road							**Date:** Wednesday, May 11, 2011						**AM**
7	Pleasant Hill Road SOUTHBOUND			Old Tunnel Road WESTBOUND			Pleasant Hill Road NORTHBOUND			Old Tunnel Road EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	107	15	28	0	2	4	243	0	28	7	2	436
7:45 AM	0	115	20	35	0	4	5	259	0	35	8	5	486
8:00 AM	0	115	23	39	0	4	6	263	0	37	9	6	502
8:15 AM	0	111	22	34	0	2	5	255	0	32	8	3	472
8:30 AM	0	108	19	29	0	1	3	236	0	29	6	2	433
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	556	99	165	0	13	23	1256	0	161	38	18	2329

Location: Pleasant Hill Road at Old Tunnel Road							**Date:** Wednesday, May 11, 2011						**PM**
7	Pleasant Hill Road SOUTHBOUND			Old Tunnel Road WESTBOUND			Pleasant Hill Road NORTHBOUND			Old Tunnel Road EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	125	24	3	0	3	5	310	0	32	11	8	521
4:45 PM	0	136	26	6	0	3	5	316	0	39	12	7	550
5:00 PM	0	142	29	8	0	4	6	312	0	40	17	9	567
5:15 PM	0	155	34	9	0	5	9	321	0	45	20	10	608
5:30 PM	0	137	32	8	0	5	7	323	0	51	15	9	587
5:45 PM	0	136	27	6	0	4	7	309	0	41	11	8	549
Total	0	831	172	40	0	24	39	1891	0	248	86	51	3382

PEAK HOUR VOLUMES													
Location: Pleasant Hill Road at Old Tunnel Road							**Date:** Wednesday, May 11, 2011						**AM**
7	Pleasant Hill Road SOUTHBOUND			Old Tunnel Road WESTBOUND			Pleasant Hill Road NORTHBOUND			Old Tunnel Road EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
7:30 AM	0	107	15	28	0	2	4	243	0	28	7	2	436
7:45 AM	0	115	20	35	0	4	5	259	0	35	8	5	486
8:00 AM	0	115	23	39	0	4	6	263	0	37	9	6	502
8:15 AM	0	111	22	34	0	2	5	255	0	32	8	3	472
Total	0	448	80	136	0	12	20	1020	0	132	32	16	1896

PEAK HOUR VOLUMES													
Location: Pleasant Hill Road at Old Tunnel Road							**Date:** Wednesday, May 11, 2011						**PM**
7	Pleasant Hill Road SOUTHBOUND			Old Tunnel Road WESTBOUND			Pleasant Hill Road NORTHBOUND			Old Tunnel Road EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
4:45 PM	0	136	26	6	0	3	5	316	0	39	12	7	550
5:00 PM	0	142	29	8	0	4	6	312	0	40	17	9	567
5:15 PM	0	155	34	9	0	5	9	321	0	45	20	10	608
5:30 PM	0	137	32	8	0	5	7	323	0	51	15	9	587
Total	0	570	121	31	0	17	27	1272	0	175	64	35	2312



Type of peak hour being reported: Intersection Peak

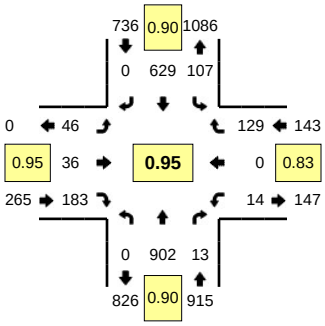
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- SR 24 EB Off Ramp/Old Tunnel Rd

QC JOB #: 10687116

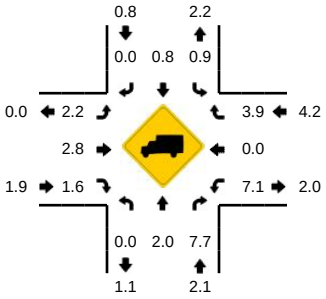
CITY/STATE: Lafayette, CA

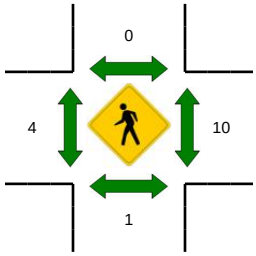
DATE: Thu, Dec 01 2011

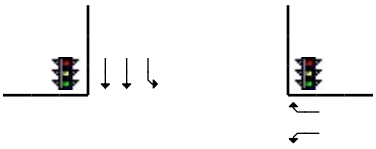


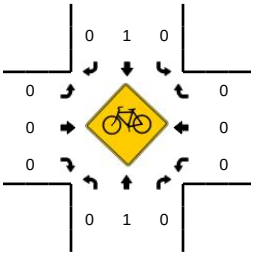
Peak-Hour: 3:00 PM -- 4:00 PM

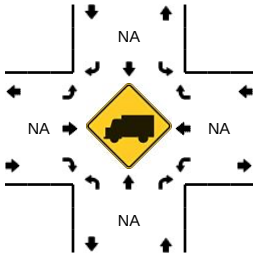
Peak 15-Min: 3:30 PM -- 3:45 PM

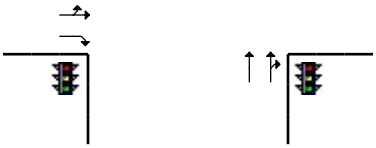


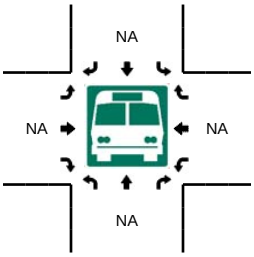












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				SR 24 EB Off Ramp/Old Tunnel Rd (Eastbound)				SR 24 EB Off Ramp/Old Tunnel Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	0	175	5	0	16	126	0	0	9	5	57	0	4	0	34	0	431	
2:15 PM	0	163	2	0	14	171	0	2	15	10	53	0	11	0	21	0	462	
2:30 PM	0	192	4	0	19	134	0	4	12	13	55	0	7	0	31	0	471	
2:45 PM	0	212	9	0	26	138	0	3	8	15	51	0	4	0	18	0	484	1848
3:00 PM	0	215	2	0	23	150	0	2	14	8	44	0	5	0	35	0	498	1915
3:15 PM	0	220	4	0	35	167	0	2	11	6	45	0	1	0	42	0	533	1986
3:30 PM	0	254	2	0	16	157	0	5	12	10	54	0	5	0	25	0	540	2055
3:45 PM	0	213	5	0	24	155	0	0	9	12	40	0	3	0	27	0	488	2059

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1016	8	0	64	628	0	20	48	40	216	0	20	0	100	0	2160
Heavy Trucks	0	16	0		0	8	0		0	0	4		0	0	0		28
Pedestrians		0				0				4				16			20
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Intersection No: 8
Location: Brown Avenue at Deer Hill Road
AM Start Time 7:00 AM
PM Start Time 4:00 PM
Date: Tuesday, May 24, 2011
Collected By: Olga & Charlie

BROWN AVENUE AT DEER HILL ROAD INTERSECTION TURNING MOVEMENT SUMMARY

Location: Brown Avenue at Deer Hill Road										**Date:** Tuesday, May 24, 2011			**AM**
8	Brown Avenue SOUTHBOUND			Deer Hill Road WESTBOUND			Brown Avenue NORTHBOUND			Deer Hill Road EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	14	3	9	10	170	47	16	4	24	10	43	7	357
7:45 AM	14	2	8	9	163	43	19	3	22	11	53	8	355
8:00 AM	13	2	6	8	159	39	22	2	19	15	55	6	346
8:15 AM	11	1	5	9	153	43	19	3	20	12	49	5	330
8:30 AM	10	1	3	7	154	41	11	2	15	9	45	5	303
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	62	9	31	43	799	213	87	14	100	57	245	31	1691

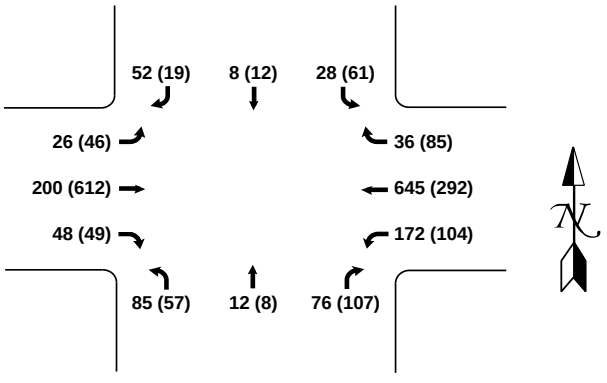
Location: Brown Avenue at Deer Hill Road										**Date:** Tuesday, May 24, 2011			**PM**
8	Brown Avenue SOUTHBOUND			Deer Hill Road WESTBOUND			Brown Avenue NORTHBOUND			Deer Hill Road EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	4	3	14	17	62	22	20	1	9	9	129	10	300
4:45 PM	4	2	15	18	67	24	23	1	9	8	141	9	321
5:00 PM	3	3	17	21	75	27	30	2	16	10	149	11	364
5:15 PM	6	4	13	23	77	27	29	3	17	18	159	13	389
5:30 PM	6	3	16	23	73	26	25	2	15	13	163	13	378
5:45 PM	5	3	9	15	69	20	17	3	14	11	144	9	319
Total	28	18	84	117	423	146	144	12	80	69	885	65	2071

PEAK HOUR VOLUMES

Location: Brown Avenue at Deer Hill Road										**Date:** Tuesday, May 24, 2011			**AM**
8	Brown Avenue SOUTHBOUND			Deer Hill Road WESTBOUND			Brown Avenue NORTHBOUND			Deer Hill Road EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
7:30 AM	14	3	9	10	170	47	16	4	24	10	43	7	357
7:45 AM	14	2	8	9	163	43	19	3	22	11	53	8	355
8:00 AM	13	2	6	8	159	39	22	2	19	15	55	6	346
8:15 AM	11	1	5	9	153	43	19	3	20	12	49	5	330
Total	52	8	28	36	645	172	76	12	85	48	200	26	1388

PEAK HOUR VOLUMES

Location: Brown Avenue at Deer Hill Road										**Date:** Tuesday, May 24, 2011			**PM**
8	Brown Avenue SOUTHBOUND			Deer Hill Road WESTBOUND			Brown Avenue NORTHBOUND			Deer Hill Road EASTBOUND			
Time	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Rt	Thru	Lt	Total
4:45 PM	4	2	15	18	67	24	23	1	9	8	141	9	321
5:00 PM	3	3	17	21	75	27	30	2	16	10	149	11	364
5:15 PM	6	4	13	23	77	27	29	3	17	18	159	13	389
5:30 PM	6	3	16	23	73	26	25	2	15	13	163	13	378
Total	19	12	61	85	292	104	107	8	57	49	612	46	1452



All Traffic Data

(916) 771-8700
F (916) 786-2879

LAFAYETTE

File Name : 09-7331-024 SIERRA VISTA-DEER HILL-F
Site Code : 00000000
Start Date : 09/02/2009
Page No : 1

Groups Printed- Unshifted

	SIERRA VISTA WAY Southbound					DEER HILL RD. Westbound					FIRST ST. Northbound					DEER HILL RD. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	6	3	0	9	15	94	0	0	109	64	2	7	0	73	0	20	132	0	152	0	343	343
07:15	0	4	2	1	6	25	105	0	0	130	56	0	13	0	69	2	30	156	0	188	1	393	394
07:30	1	5	3	1	9	43	111	0	0	154	62	2	13	0	77	1	44	154	1	199	2	439	441
07:45	2	6	3	0	11	33	127	0	0	160	82	2	19	0	103	6	36	193	2	235	2	509	511
Total	3	21	11	2	35	116	437	0	0	553	264	6	52	0	322	9	130	635	3	774	5	1684	1689
08:00	5	5	11	0	21	30	110	0	0	140	69	2	25	0	96	4	68	192	2	264	2	521	523
08:15	1	5	10	1	16	33	107	1	1	141	68	2	21	0	91	4	105	227	0	336	2	584	586
08:30	0	6	3	0	9	41	114	1	0	156	67	4	15	1	86	10	37	240	6	287	7	538	545
08:45	2	5	2	4	9	36	114	1	1	151	57	5	20	0	82	7	30	241	3	278	8	520	528
Total	8	21	26	5	55	140	445	3	2	588	261	13	81	1	355	25	240	900	11	1165	19	2163	2182
*** BREAK ***																							
11:45	0	4	0	0	4	19	52	0	0	71	42	5	17	0	64	7	54	242	0	303	0	442	442
Total	0	4	0	0	4	19	52	0	0	71	42	5	17	0	64	7	54	242	0	303	0	442	442
12:00	0	4	0	0	4	13	46	0	0	59	43	2	23	0	68	3	56	243	0	302	0	433	433
12:15	0	3	2	0	5	13	44	0	0	57	48	1	12	0	61	4	47	249	1	300	1	423	424
12:30	0	3	6	0	9	18	42	2	0	62	44	1	13	0	58	5	50	246	0	301	0	430	430
12:45	1	6	4	0	11	17	36	2	1	55	45	3	13	0	61	4	50	239	0	293	1	420	421
Total	1	16	12	0	29	61	168	4	1	233	180	7	61	0	248	16	203	977	1	1196	2	1706	1708
13:00	1	2	0	0	3	21	30	0	0	51	43	3	21	0	67	5	48	236	0	289	0	410	410
13:15	1	5	2	0	8	12	28	0	0	40	48	0	11	0	59	6	47	235	0	288	0	395	395
13:30	2	3	2	0	7	20	36	1	0	57	56	4	17	0	77	6	48	243	0	297	0	438	438
13:45	0	1	3	0	4	17	39	1	0	57	30	0	21	1	51	9	47	236	0	292	1	404	405
Total	4	11	7	0	22	70	133	2	0	205	177	7	70	1	254	26	190	950	0	1166	1	1647	1648
14:00	1	5	0	0	6	15	46	0	0	61	45	3	24	0	72	4	57	230	1	291	1	430	431
14:15	0	6	10	0	16	25	55	1	0	81	42	3	19	0	64	4	59	239	0	302	0	463	463
14:30	1	1	1	0	3	31	64	3	1	98	46	1	22	0	69	8	67	251	0	326	1	496	497
14:45	1	7	6	0	14	27	61	1	0	89	44	3	15	0	62	9	74	295	2	378	2	543	545
Total	3	19	17	0	39	98	226	5	1	329	177	10	80	0	267	25	257	1015	3	1297	4	1932	1936
15:00	1	12	2	0	15	28	44	2	0	74	52	6	30	0	88	5	80	254	2	339	2	516	518
*** BREAK ***																							
Total	1	12	2	0	15	28	44	2	0	74	52	6	30	0	88	5	80	254	2	339	2	516	518
16:00	0	8	0	0	8	14	45	0	0	59	45	1	28	0	74	5	74	284	2	363	2	504	506
16:15	0	1	1	1	2	18	44	0	0	62	38	2	34	1	74	7	73	280	0	360	2	498	500
16:30	0	3	4	0	7	15	46	0	0	61	38	9	24	0	71	7	93	295	0	395	0	534	534
16:45	1	4	4	0	9	21	50	3	0	74	45	1	28	0	74	12	115	300	0	427	0	584	584
Total	1	16	9	1	26	68	185	3	0	256	166	13	114	1	293	31	355	1159	2	1545	4	2120	2124

All Traffic Data

(916) 771-8700
F (916) 786-2879

LAFAYETTE

File Name : 09-7331-024 SIERRA VISTA-DEER HILL-F
Site Code : 00000000
Start Date : 09/02/2009
Page No : 2

Groups Printed- Unshifted

	SIERRA VISTA WAY Southbound					DEER HILL RD. Westbound					FIRST ST. Northbound					DEER HILL RD. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
17:00	2	8	4	0	14	23	63	0	0	86	44	3	28	0	75	4	125	309	0	438	0	613	613
17:15	0	1	0	0	1	27	56	0	0	83	37	2	23	0	62	8	126	304	0	438	0	584	584
17:30	1	8	2	1	11	16	52	0	1	68	48	4	28	0	80	4	162	342	0	508	2	667	669
17:45	2	7	3	1	12	18	63	2	0	83	37	5	37	0	79	5	147	341	0	493	1	667	668
Total	5	24	9	2	38	84	234	2	1	320	166	14	116	0	296	21	560	1296	0	1877	3	2531	2534
Grand Total	26	144	93	10	263	684	1924	21	5	2629	1485	81	621	3	2187	165	2069	7428	22	9662	40	14741	14781
Apprch %	9.9	54.8	35.4			26	73.2	0.8			67.9	3.7	28.4			1.7	21.4	76.9					
Total %	0.2	1	0.6		1.8	4.6	13.1	0.1		17.8	10.1	0.5	4.2		14.8	1.1	14	50.4		65.5	0.3	99.7	

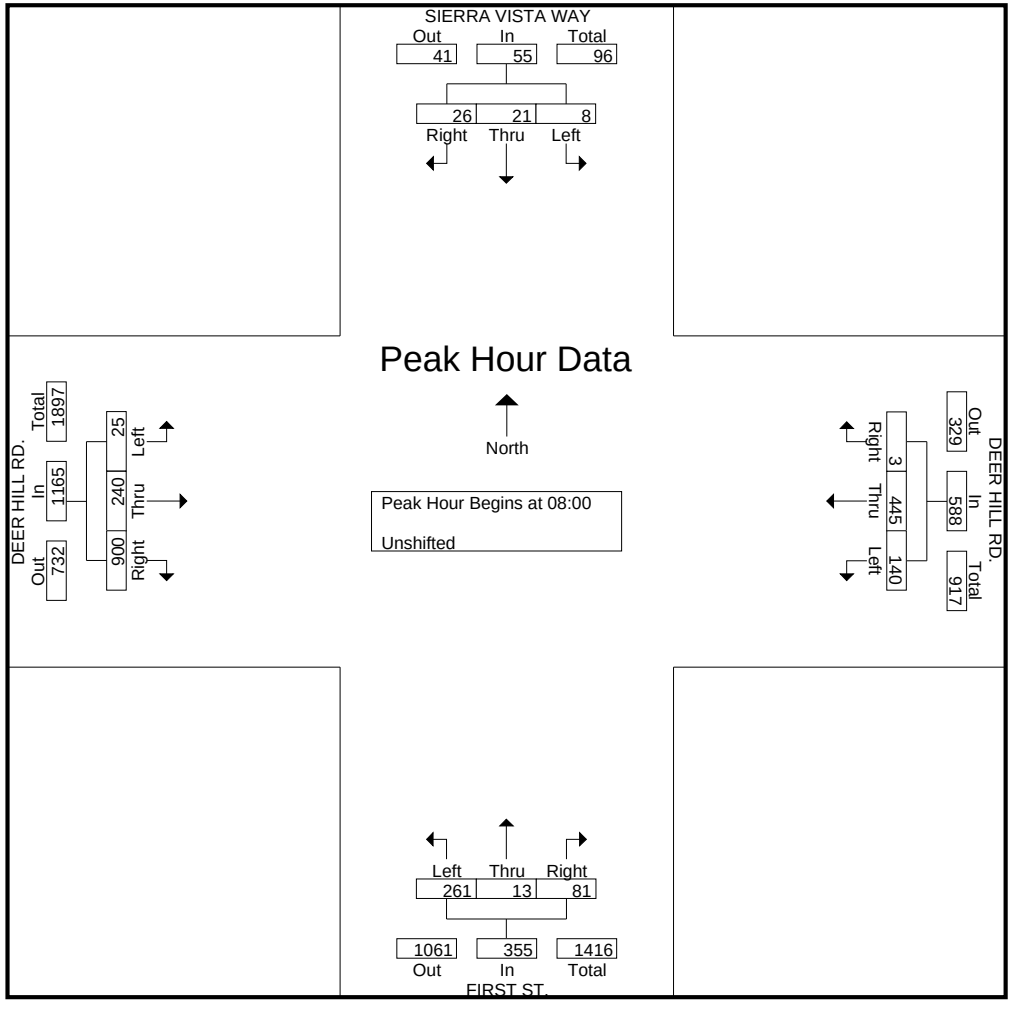
	SIERRA VISTA WAY Southbound				DEER HILL RD. Westbound				FIRST ST. Northbound				DEER HILL RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	**5**	5	**11**	**21**	30	110	0	140	**69**	2	**25**	**96**	4	68	192	264	521
08:15	1	5	10	16	33	107	**1**	141	68	2	21	91	4	**105**	227	**336**	**584**
08:30	0	**6**	3	9	**41**	**114**	1	**156**	67	4	15	86	**10**	37	240	287	538
08:45	2	5	2	9	36	114	1	151	57	**5**	20	82	7	30	**241**	278	520
Total Volume	8	21	26	55	140	445	3	588	261	13	81	355	25	240	900	1165	2163
% App. Total	14.5	38.2	47.3		23.8	75.7	0.5		73.5	3.7	22.8		2.1	20.6	77.3		
PHF	.400	.875	.591	.655	.854	.976	.750	.942	.946	.650	.810	.924	.625	.571	.934	.867	.926

All Traffic Data

(916) 771-8700
F (916) 786-2879

LAFAYETTE

File Name : 09-7331-024 SIERRA VISTA-DEER HILL-F
Site Code : 00000000
Start Date : 09/02/2009
Page No : 3



Peak Hour Analysis From 11:15 to 15:00 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 14:15

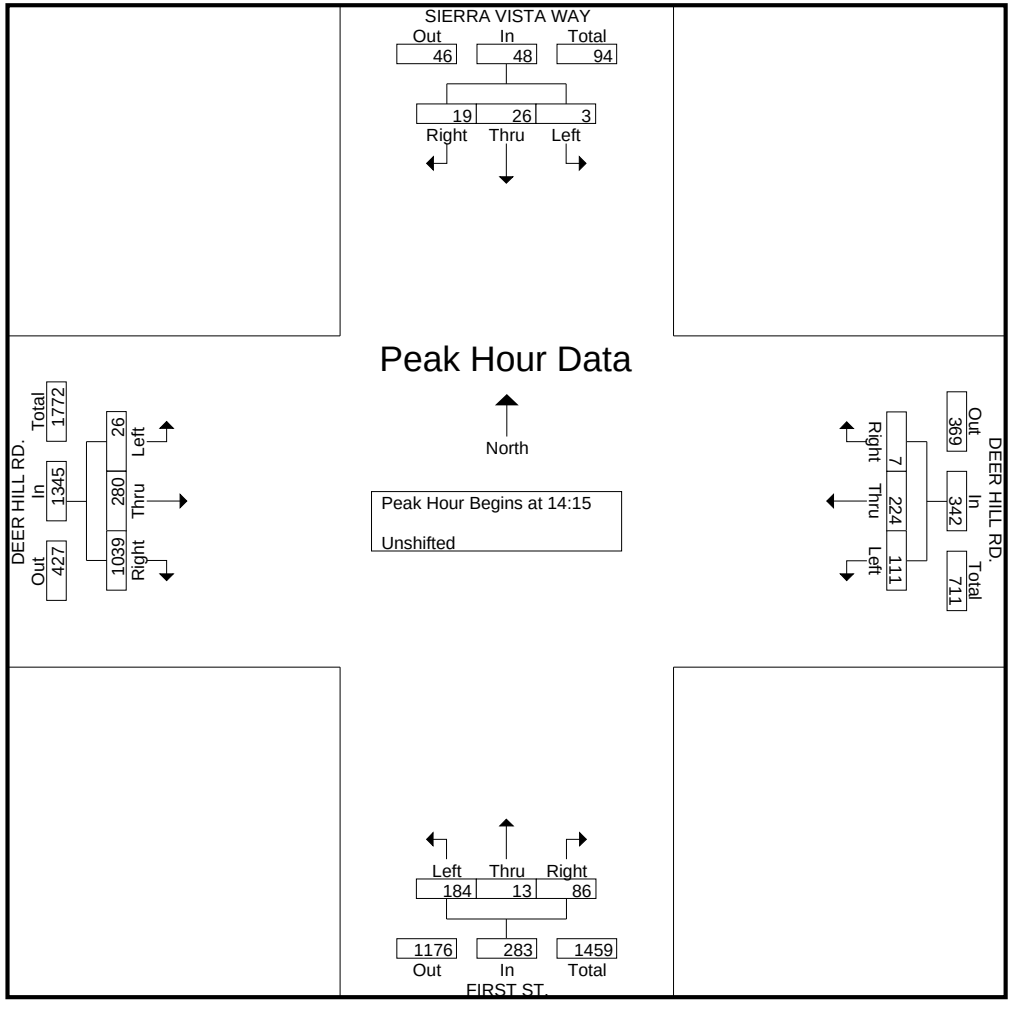
14:15	0	6	**10**	**16**	25	55	1	81	42	3	19	64	4	59	239	302	463
14:30	**1**	1	1	3	**31**	**64**	**3**	**98**	46	1	22	69	8	67	251	326	496
14:45	1	7	6	14	27	61	1	89	44	3	15	62	**9**	74	**295**	**378**	**543**
15:00	1	**12**	2	15	28	44	2	74	**52**	**6**	**30**	**88**	5	**80**	254	339	516
Total Volume	3	26	19	48	111	224	7	342	184	13	86	283	26	280	1039	1345	2018
% App. Total	6.2	54.2	39.6		32.5	65.5	2		65	4.6	30.4		1.9	20.8	77.2		
PHF	.750	.542	.475	.750	.895	.875	.583	.872	.885	.542	.717	.804	.722	.875	.881	.890	.929

All Traffic Data

(916) 771-8700
F (916) 786-2879

LAFAYETTE

File Name : 09-7331-024 SIERRA VISTA-DEER HILL-F
Site Code : 00000000
Start Date : 09/02/2009
Page No : 4



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

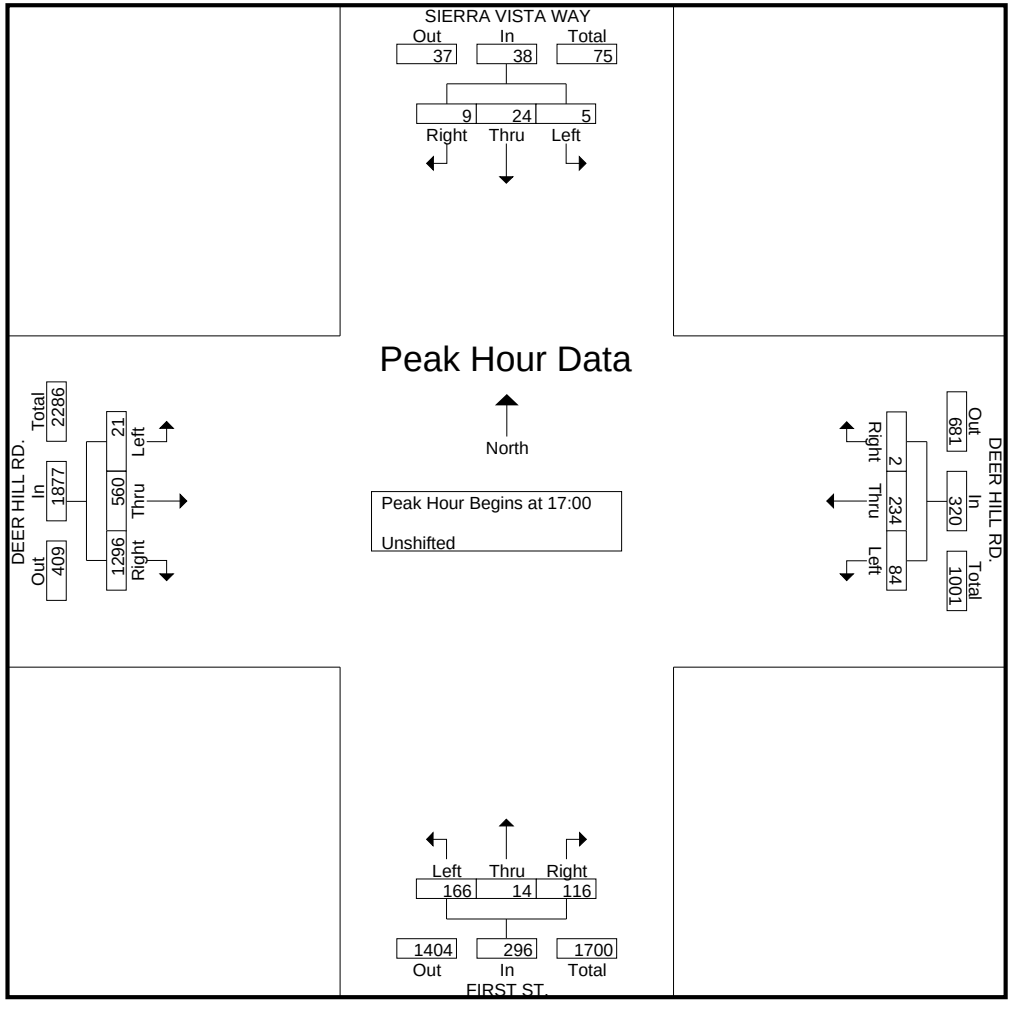
17:00	**2**	**8**	**4**	**14**	23	**63**	0	**86**	44	3	28	75	4	125	309	438	613
17:15	0	1	0	1	**27**	56	0	83	37	2	23	62	**8**	126	304	438	584
17:30	1	8	2	11	16	52	0	68	**48**	4	28	**80**	4	**162**	**342**	**508**	**667**
17:45	2	7	3	12	18	63	**2**	83	37	**5**	**37**	79	5	147	341	493	667
Total Volume	5	24	9	38	84	234	2	320	166	14	116	296	21	560	1296	1877	2531
% App. Total	13.2	63.2	23.7		26.2	73.1	0.6		56.1	4.7	39.2		1.1	29.8	69		
PHF	.625	.750	.563	.679	.778	.929	.250	.930	.865	.700	.784	.925	.656	.864	.947	.924	.949

All Traffic Data

(916) 771-8700
F (916) 786-2879

LAFAYETTE

File Name : 09-7331-024 SIERRA VISTA-DEER HILL-F
Site Code : 00000000
Start Date : 09/02/2009
Page No : 5



All Traffic Data

(916) 771-8700
F (916) 786-2879

LAFAYETTE

File Name : 09-7331-023 LAUREL-DEER HILL RD-F
Site Code : 00000000
Start Date : 09/02/2009

Groups Printed- Unshifted

	LAUREL DR. Southbound					DEER HILL RD. Westbound					WB CA 24 RAMPS Northbound					DEER HILL RD. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	2	2	3	0	7	59	101	1	0	161	140	1	110	0	251	3	40	71	0	114	0	533	533
07:15	1	0	2	0	3	61	105	0	0	166	132	0	104	0	236	1	76	80	0	157	0	562	562
07:30	8	1	1	1	10	69	109	2	0	180	165	0	105	1	270	3	90	74	0	167	2	627	629
07:45	4	1	0	0	5	85	132	1	0	218	201	1	121	1	323	0	108	95	0	203	1	749	750
Total	15	4	6	1	25	274	447	4	0	725	638	2	440	2	1080	7	314	320	0	641	3	2471	2474
08:00	4	1	7	0	12	69	116	2	0	187	232	1	127	0	360	0	125	69	0	194	0	753	753
08:15	5	3	1	0	9	66	113	0	0	179	211	1	128	1	340	0	144	58	0	202	1	730	731
08:30	5	1	1	0	7	68	119	0	0	187	178	5	161	0	344	1	163	62	0	226	0	764	764
08:45	4	3	4	0	11	69	101	1	0	171	172	2	168	1	342	5	109	76	0	190	1	714	715
Total	18	8	13	0	39	272	449	3	0	724	793	9	584	2	1386	6	541	265	0	812	2	2961	2963
*** BREAK ***																							
11:45	2	0	3	0	5	37	60	2	0	99	115	3	183	0	301	1	125	63	0	189	0	594	594
Total	2	0	3	0	5	37	60	2	0	99	115	3	183	0	301	1	125	63	0	189	0	594	594
12:00	7	0	0	0	7	37	46	1	0	84	101	0	182	0	283	3	129	60	0	192	0	566	566
12:15	4	1	0	0	5	45	46	1	0	92	107	6	166	0	279	0	135	48	0	183	0	559	559
12:30	2	0	1	0	3	37	48	3	0	88	101	0	162	0	263	2	136	62	0	200	0	554	554
12:45	4	0	1	0	5	37	39	0	0	76	125	1	160	0	286	3	139	58	1	200	1	567	568
Total	17	1	2	0	20	156	179	5	0	340	434	7	670	0	1111	8	539	228	1	775	1	2246	2247
13:00	2	3	2	0	7	35	36	4	0	75	126	4	162	0	292	3	126	58	1	187	1	561	562
13:15	2	1	4	0	7	40	38	1	0	79	109	1	167	0	277	2	126	64	0	192	0	555	555
13:30	1	0	2	0	3	49	46	0	0	95	104	2	175	0	281	1	114	60	0	175	0	554	554
13:45	4	3	1	0	8	30	41	1	0	72	98	3	160	1	261	1	130	43	1	174	2	515	517
Total	9	7	9	0	25	154	161	6	0	321	437	10	664	1	1111	7	496	225	2	728	3	2185	2188
14:00	3	0	3	0	6	46	46	0	0	92	107	3	162	0	272	1	134	63	0	198	0	568	568
14:15	3	3	2	0	8	43	55	5	0	103	106	2	172	0	280	0	128	59	1	187	1	578	579
14:30	7	1	0	0	8	45	65	1	0	111	108	0	173	1	281	5	151	63	1	219	2	619	621
14:45	2	3	3	0	8	48	55	1	0	104	127	4	207	1	338	1	172	53	0	226	1	676	677
Total	15	7	8	0	30	182	221	7	0	410	448	9	714	2	1171	7	585	238	2	830	4	2441	2445
15:00	7	1	1	0	9	40	56	2	0	98	122	2	173	0	297	2	175	63	0	240	0	644	644
*** BREAK ***																							
Total	7	1	1	0	9	40	56	2	0	98	122	2	173	0	297	2	175	63	0	240	0	644	644
16:00	5	1	0	1	6	45	43	2	0	90	117	1	173	0	291	1	187	64	0	252	1	639	640
16:15	5	1	0	0	6	33	48	4	0	85	127	3	192	1	322	0	168	67	0	235	1	648	649
16:30	3	2	2	0	7	36	48	2	0	86	121	1	197	0	319	5	196	71	0	272	0	684	684
16:45	3	0	1	0	4	54	41	0	0	95	138	2	218	0	358	4	204	64	0	272	0	729	729
Total	16	4	3	1	23	168	180	8	0	356	503	7	780	1	1290	10	755	266	0	1031	2	2700	2702

All Traffic Data

(916) 771-8700
F (916) 786-2879

LAFAYETTE

File Name : 09-7331-023 LAUREL-DEER HILL RD-F
Site Code : 00000000
Start Date : 09/02/2009

Groups Printed- Unshifted

	LAUREL DR. Southbound					DEER HILL RD. Westbound					WB CA 24 RAMPS Northbound					DEER HILL RD. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
17:00	4	0	1	0	5	52	57	0	0	109	117	2	199	0	318	3	240	62	0	305	0	737	737
17:15	6	0	1	0	7	37	55	1	0	93	155	2	197	0	354	8	253	68	0	329	0	783	783
17:30	8	1	2	1	11	51	49	0	0	100	115	2	193	0	310	0	317	64	0	381	1	802	803
17:45	1	0	5	1	6	36	63	2	0	101	123	0	194	0	317	6	299	54	0	359	1	783	784
Total	19	1	9	2	29	176	224	3	0	403	510	6	783	0	1299	17	1109	248	0	1374	2	3105	3107
Grand Total	118	33	54	4	205	1459	1977	40	0	3476	4000	55	4991	8	9046	65	4639	1916	5	6620	17	19347	19364
Apprch %	57.6	16.1	26.3			42	56.9	1.2			44.2	0.6	55.2			1	70.1	28.9					
Total %	0.6	0.2	0.3		1.1	7.5	10.2	0.2		18	20.7	0.3	25.8		46.8	0.3	24	9.9		34.2	0.1	99.9	

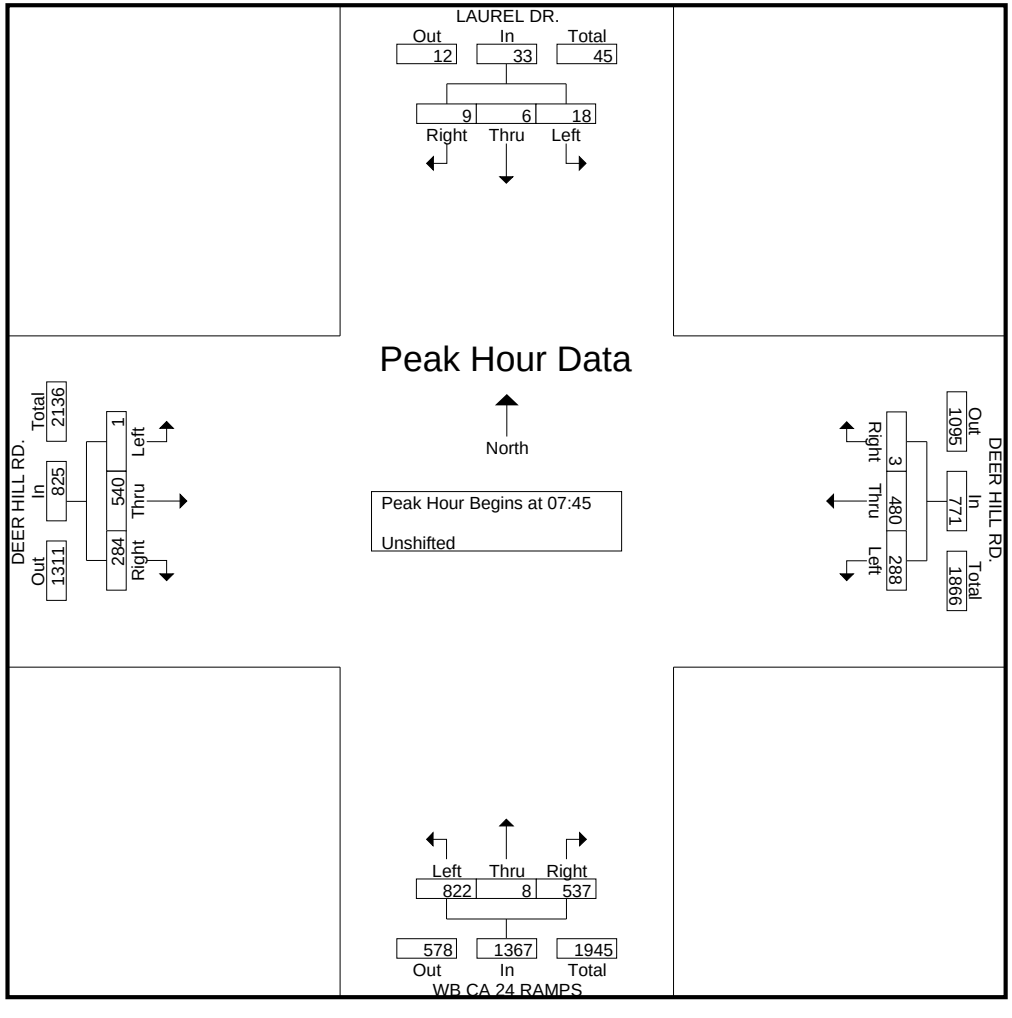
	LAUREL DR. Southbound				DEER HILL RD. Westbound				WB CA 24 RAMPS Northbound				DEER HILL RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	4	1	0	5	**85**	**132**	1	**218**	201	1	121	323	0	108	**95**	203	749
08:00	4	1	**7**	**12**	69	116	**2**	187	**232**	1	127	**360**	0	125	69	194	753
08:15	**5**	**3**	1	9	66	113	0	179	211	1	128	340	0	144	58	202	730
08:30	5	1	1	7	68	119	0	187	178	**5**	**161**	344	**1**	**163**	62	**226**	**764**
Total Volume	18	6	9	33	288	480	3	771	822	8	537	1367	1	540	284	825	2996
% App. Total	54.5	18.2	27.3		37.4	62.3	0.4		60.1	0.6	39.3		0.1	65.5	34.4		
PHF	.900	.500	.321	.688	.847	.909	.375	.884	.886	.400	.834	.949	.250	.828	.747	.913	.980

All Traffic Data

(916) 771-8700
F (916) 786-2879

LAFAYETTE

File Name : 09-7331-023 LAUREL-DEER HILL RD-F
Site Code : 00000000
Start Date : 09/02/2009
Page No : 3



Peak Hour Analysis From 11:45 to 15:00 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 14:15

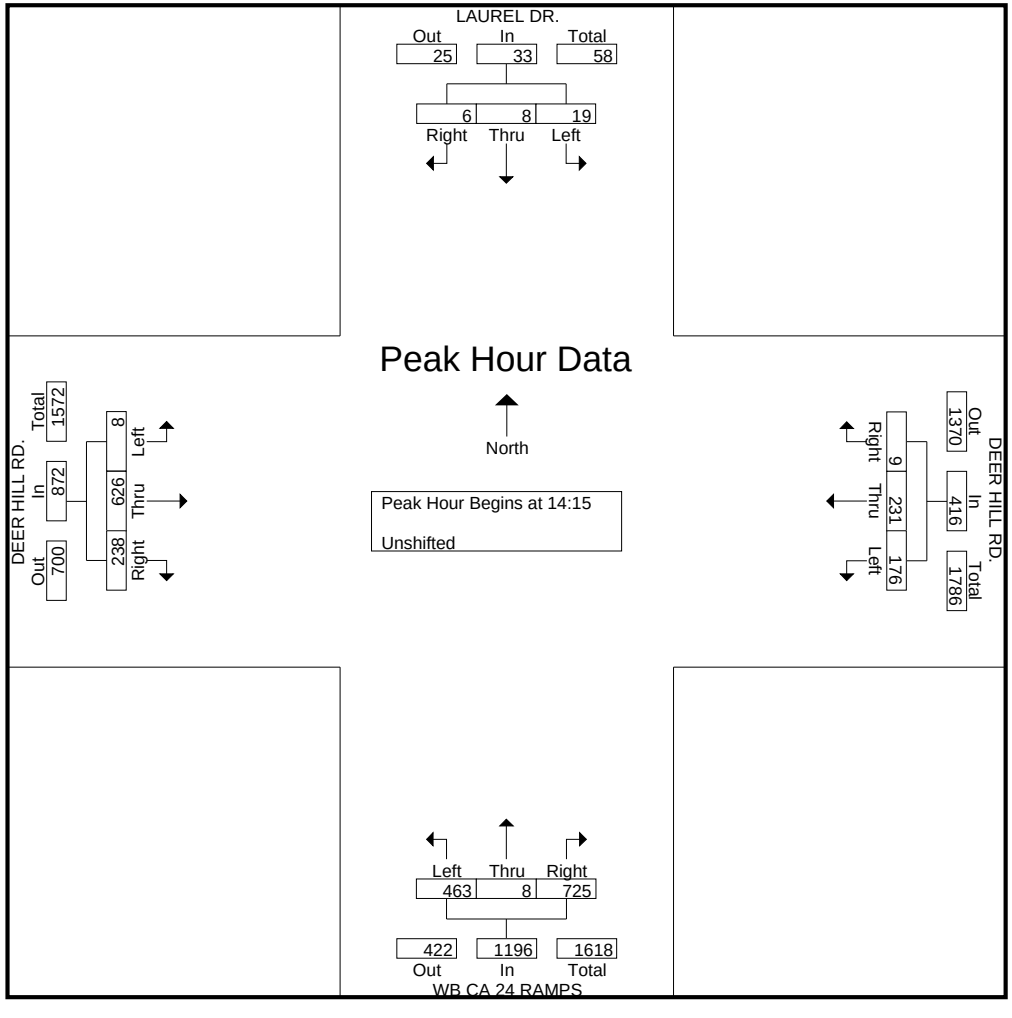
14:15	3	**3**	2	8	43	55	**5**	103	106	2	172	280	0	128	59	187	578
14:30	**7**	1	0	8	45	**65**	1	**111**	108	0	173	281	**5**	151	**63**	219	619
14:45	2	3	**3**	8	**48**	55	1	104	**127**	**4**	**207**	**338**	1	172	53	226	**676**
15:00	7	1	1	**9**	40	56	2	98	122	2	173	297	2	**175**	63	**240**	644
Total Volume	19	8	6	33	176	231	9	416	463	8	725	1196	8	626	238	872	2517
% App. Total	57.6	24.2	18.2		42.3	55.5	2.2		38.7	0.7	60.6		0.9	71.8	27.3		
PHF	.679	.667	.500	.917	.917	.888	.450	.937	.911	.500	.876	.885	.400	.894	.944	.908	.931

All Traffic Data

(916) 771-8700
F (916) 786-2879

LAFAYETTE

File Name : 09-7331-023 LAUREL-DEER HILL RD-F
Site Code : 00000000
Start Date : 09/02/2009
Page No : 4



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

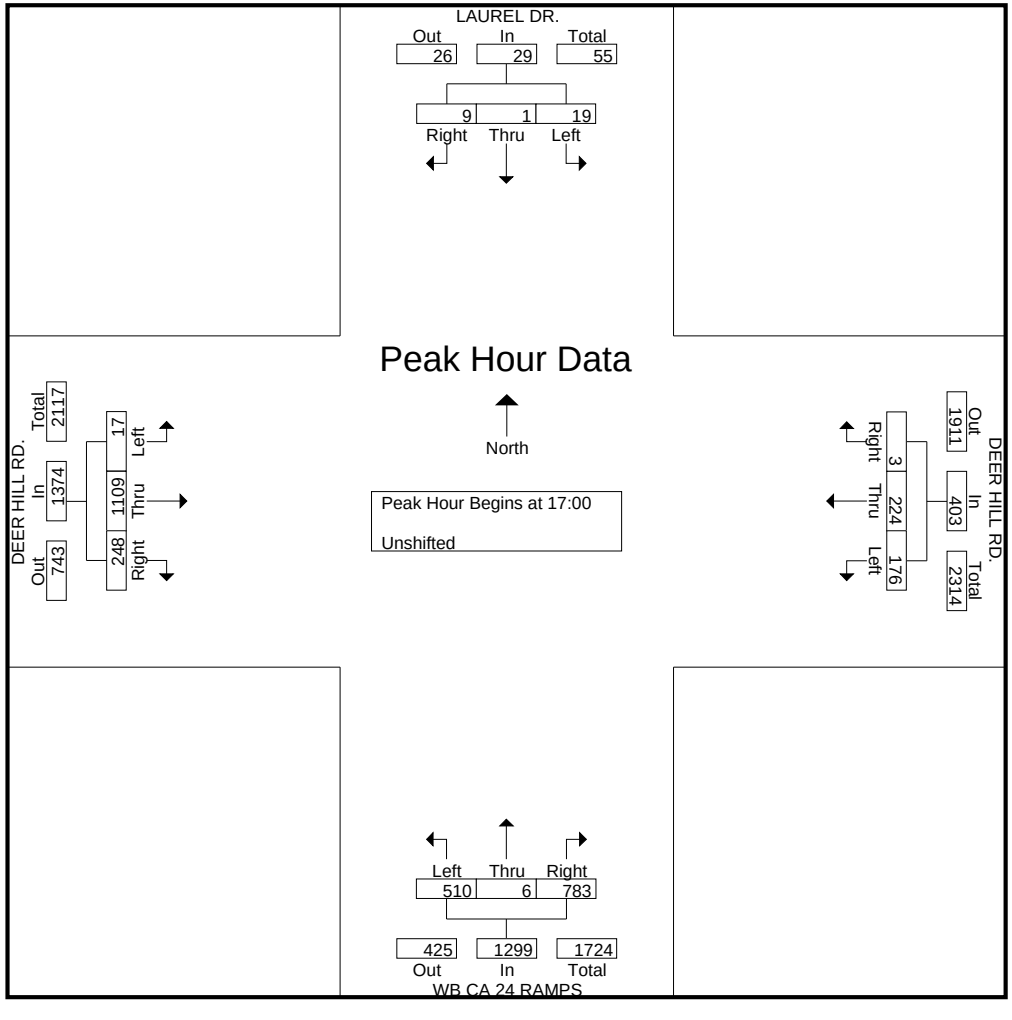
17:00	4	0	1	5	**52**	57	0	**109**	117	**2**	**199**	318	3	240	62	305	737
17:15	6	0	1	7	37	55	1	93	**155**	2	197	**354**	**8**	253	**68**	329	783
17:30	**8**	**1**	2	**11**	51	49	0	100	115	2	193	310	0	**317**	64	**381**	**802**
17:45	1	0	**5**	6	36	**63**	**2**	101	123	0	194	317	6	299	54	359	783
Total Volume	19	1	9	29	176	224	3	403	510	6	783	1299	17	1109	248	1374	3105
% App. Total	65.5	3.4	31		43.7	55.6	0.7		39.3	0.5	60.3		1.2	80.7	18		
PHF	.594	.250	.450	.659	.846	.889	.375	.924	.823	.750	.984	.917	.531	.875	.912	.902	.968

All Traffic Data

(916) 771-8700
F (916) 786-2879

LAFAYETTE

File Name : 09-7331-023 LAUREL-DEER HILL RD-F
Site Code : 00000000
Start Date : 09/02/2009
Page No : 5



Type of peak hour being reported: Intersection Peak

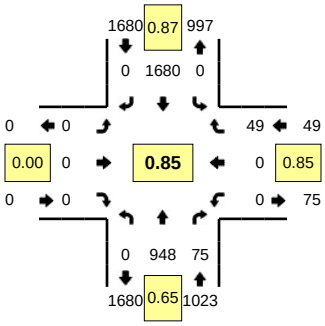
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- Acalanes Ave

QC JOB #: 10687107

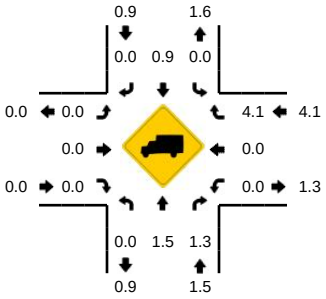
CITY/STATE: Lafayette, CA

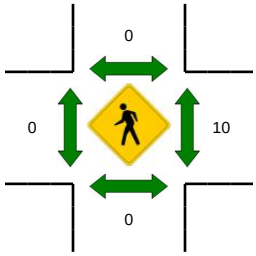
DATE: Thu, Dec 01 2011

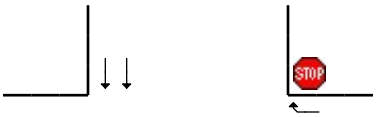


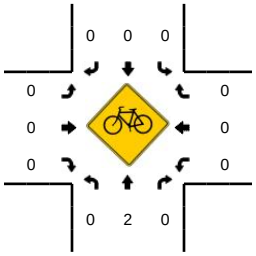
Peak-Hour: 7:30 AM -- 8:30 AM

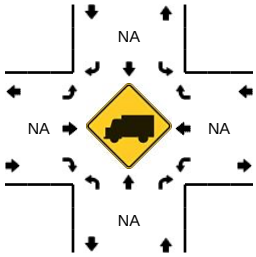
Peak 15-Min: 7:45 AM -- 8:00 AM

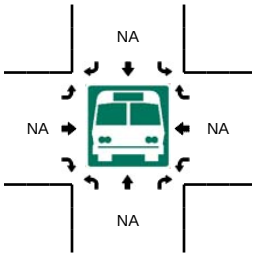












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Acalanes Ave (Eastbound)				Acalanes Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	79	1	0	0	393	0	0	0	0	0	0	0	0	6	0	479	
7:15 AM	0	120	2	0	0	498	0	0	0	0	0	0	0	0	5	0	625	
7:30 AM	0	234	16	0	0	419	0	0	0	0	0	0	0	0	7	0	676	
7:45 AM	0	363	31	0	0	400	0	0	0	0	0	0	0	0	12	0	806	2586
8:00 AM	0	184	18	0	0	423	0	0	0	0	0	0	0	0	15	0	640	2747
8:15 AM	0	167	10	0	0	438	0	0	0	0	0	0	0	0	15	0	630	2752
8:30 AM	0	144	6	0	0	365	0	0	0	0	0	0	0	0	9	0	524	2600
8:45 AM	0	185	5	0	0	369	0	0	0	0	0	0	0	0	10	0	569	2363

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1452	124	0	0	1600	0	0	0	0	0	0	0	0	48	0	3224
Heavy Trucks	0	12	0		0	28	0		0	0	0		0	0	0		40
Pedestrians		0				0				0				32			32
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

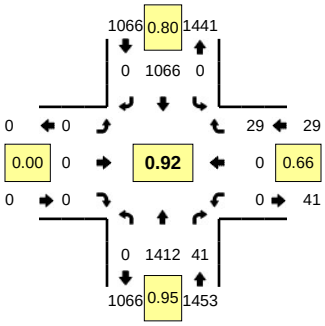
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- Acalanes Ave

QC JOB #: 10687109

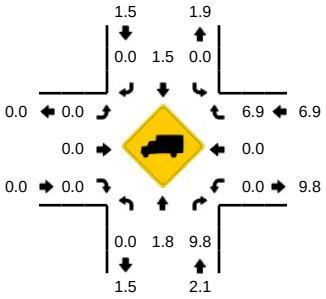
CITY/STATE: Lafayette, CA

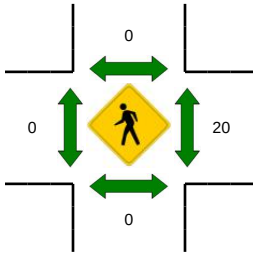
DATE: Thu, Dec 01 2011

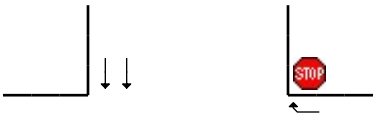


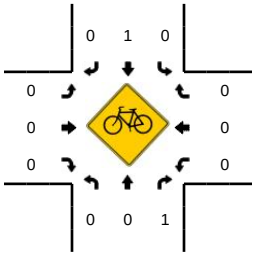
Peak-Hour: 3:00 PM -- 4:00 PM

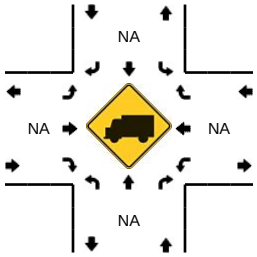
Peak 15-Min: 3:15 PM -- 3:30 PM

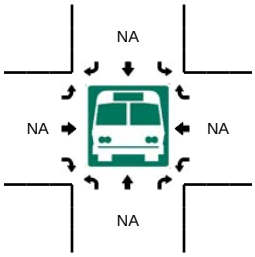












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Acalanes Ave (Eastbound)				Acalanes Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	0	215	10	0	0	197	0	0	0	0	0	0	0	0	4	0	426	
2:15 PM	0	266	11	0	0	271	0	0	0	0	0	0	0	0	10	0	558	
2:30 PM	0	250	4	0	0	206	0	0	0	0	0	0	0	0	4	0	464	
2:45 PM	0	271	11	0	0	227	0	0	0	0	0	0	0	0	5	0	514	1962
3:00 PM	0	329	13	0	0	258	0	0	0	0	0	0	0	0	5	0	605	2141
3:15 PM	0	344	10	0	0	336	0	0	0	0	0	0	0	0	6	0	696	2279
3:30 PM	0	362	12	0	0	248	0	0	0	0	0	0	0	0	11	0	633	2448
3:45 PM	0	377	6	0	0	224	0	0	0	0	0	0	0	0	7	0	614	2548

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1376	40	0	0	1344	0	0	0	0	0	0	0	0	24	0	2784
Heavy Trucks	0	24	4		0	36	0		0	0	0		0	0	0		64
Pedestrians		0				0				0				40			40
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

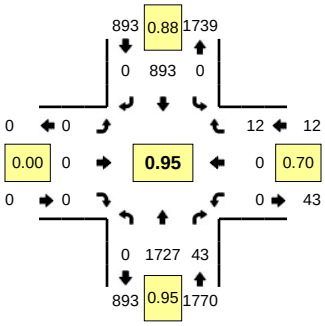
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- Acalanes Ave

QC JOB #: 10687108

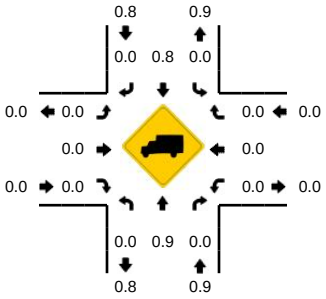
CITY/STATE: Lafayette, CA

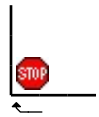
DATE: Thu, Dec 01 2011

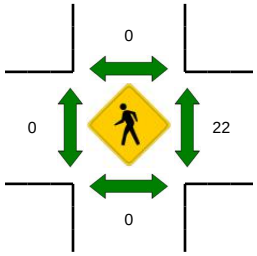


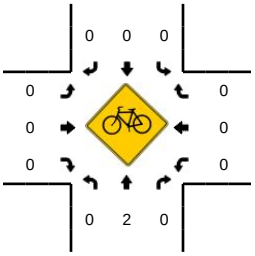
Peak-Hour: 4:30 PM -- 5:30 PM

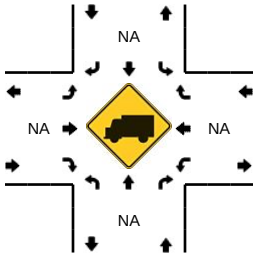
Peak 15-Min: 5:15 PM -- 5:30 PM

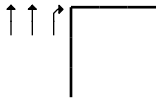


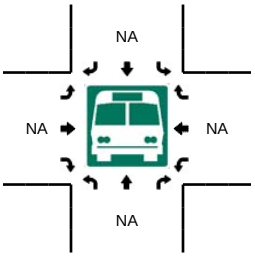












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Acalanes Ave (Eastbound)				Acalanes Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	430	6	0	0	202	0	0	0	0	0	0	0	0	2	0	640	
4:15 PM	0	399	8	0	0	190	0	0	0	0	0	0	0	0	3	0	600	
4:30 PM	0	455	10	0	0	210	0	0	0	0	0	0	0	0	5	0	680	
4:45 PM	0	436	9	0	0	204	0	0	0	0	0	0	0	0	3	0	652	2572
5:00 PM	0	409	10	0	0	219	0	0	0	0	0	0	0	0	3	0	641	2573
5:15 PM	0	427	14	0	0	260	0	0	0	0	0	0	0	0	1	0	702	2675
5:30 PM	0	416	9	0	0	231	0	0	0	0	0	0	0	0	5	0	661	2656
5:45 PM	0	396	13	0	0	206	0	0	0	0	0	0	0	0	3	0	618	2622

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1708	56	0	0	1040	0	0	0	0	0	0	0	0	4	0	2808
Heavy Trucks	0	8	0		0	12	0		0	0	0		0	0	0		20
Pedestrians		0				0				0				12			12
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

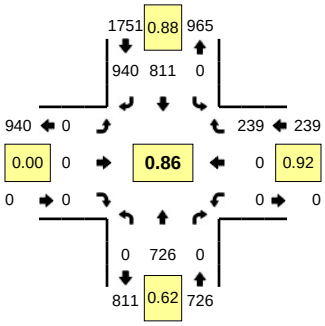
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- SR 24 WB Off (to NB)/WB On (from SB)

QC JOB #: 10687104

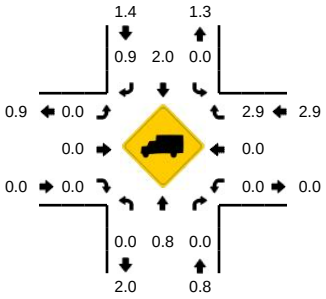
CITY/STATE: Lafayette, CA

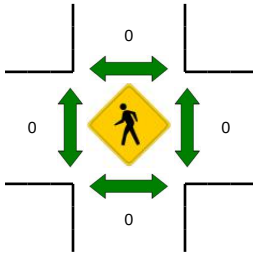
DATE: Thu, Dec 01 2011

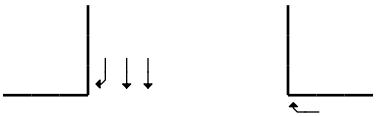


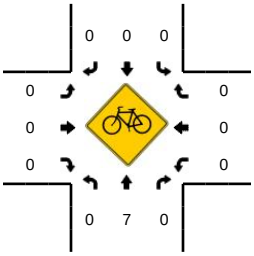
Peak-Hour: 7:15 AM -- 8:15 AM

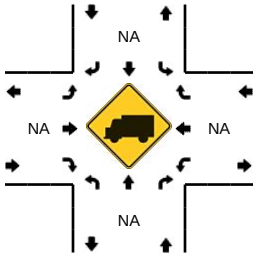
Peak 15-Min: 7:45 AM -- 8:00 AM

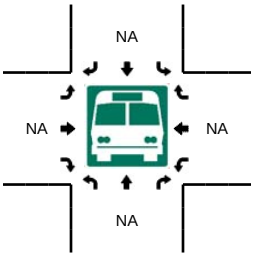












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				SR 24 WB Off (to NB)/WB On (Eastbound)				SR 24 WB Off (to NB)/WB On (Westbound)				(from SB) Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	53	0	0	0	133	255	0	0	0	0	0	0	0	26	0	467	
7:15 AM	0	84	0	0	0	190	309	0	0	0	0	0	0	0	37	0	620	
7:30 AM	0	191	0	0	0	191	230	0	0	0	0	0	0	0	67	0	679	
7:45 AM	0	310	0	0	0	230	176	0	0	0	0	0	0	0	71	0	787	2553
8:00 AM	0	141	0	0	0	200	225	0	0	0	0	0	0	0	64	0	630	2716
8:15 AM	0	121	0	0	0	201	236	0	0	0	0	0	0	0	60	0	618	2714
8:30 AM	0	95	0	0	0	166	202	0	0	0	0	0	0	0	48	0	511	2546
8:45 AM	0	130	0	0	0	199	174	0	0	0	0	0	0	0	67	0	570	2329

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1240	0	0	0	920	704	0	0	0	0	0	0	0	284	0	3148
Heavy Trucks	0	0	0		0	24	4		0	0	0		0	0	8		36
Pedestrians		0				0				0				0			0
Bicycles	0	3	0		0	0	0		0	0	0		0	0	0		3
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

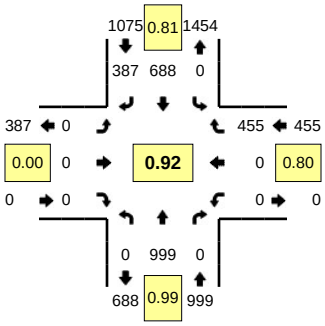
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- SR 24 WB Off (to NB)/WB On (from SB)

QC JOB #: 10687106

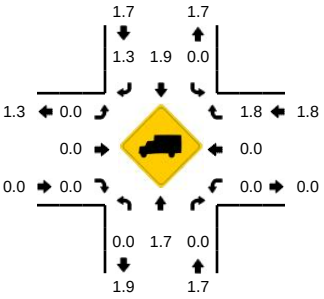
CITY/STATE: Lafayette, CA

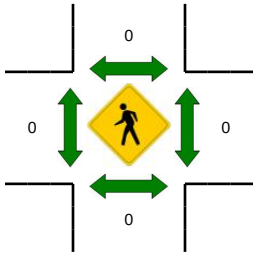
DATE: Thu, Dec 01 2011

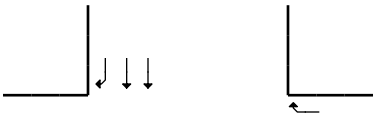


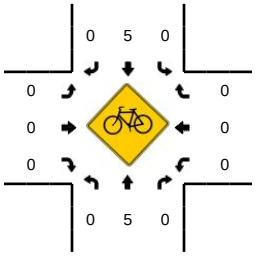
Peak-Hour: 3:00 PM -- 4:00 PM

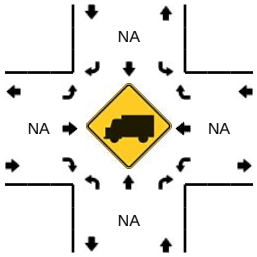
Peak 15-Min: 3:15 PM -- 3:30 PM

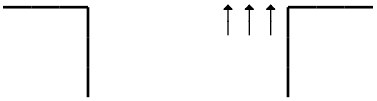


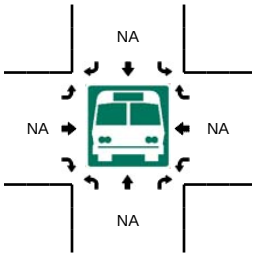












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				SR 24 WB Off (to NB)/WB On (Eastbound)				SR 24 WB Off (to NB)/WB On (Westbound)				(from SB) Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	0	140	0	0	0	130	67	0	0	0	0	0	0	0	90	0	427	
2:15 PM	0	173	0	0	0	181	91	0	0	0	0	0	0	0	105	0	550	
2:30 PM	0	172	0	0	0	134	72	0	0	0	0	0	0	0	83	0	461	
2:45 PM	0	187	0	0	0	159	69	0	0	0	0	0	0	0	93	0	508	1946
3:00 PM	0	252	0	0	0	166	99	0	0	0	0	0	0	0	94	0	611	2130
3:15 PM	0	250	0	0	0	208	126	0	0	0	0	0	0	0	105	0	689	2269
3:30 PM	0	250	0	0	0	164	85	0	0	0	0	0	0	0	114	0	613	2421
3:45 PM	0	247	0	0	0	150	77	0	0	0	0	0	0	0	142	0	616	2529

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1000	0	0	0	832	504	0	0	0	0	0	0	0	420	0	2756
Heavy Trucks	0	20	0		0	32	8		0	0	0		0	0	12		72
Pedestrians		0				0				0				0			0
Bicycles	0	2	0		0	0	0		0	0	0		0	0	0		2
Railroad																	
Stopped Buses																	

Comments:

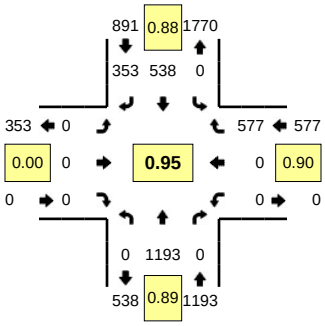
Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

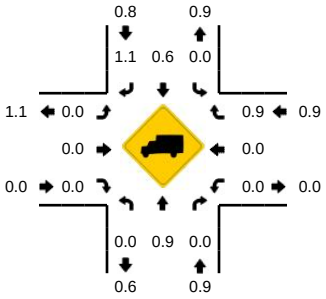
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

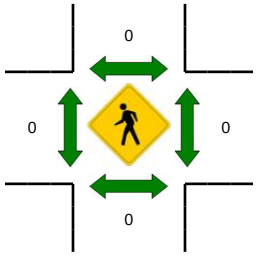
LOCATION: Pleasant Hill Rd -- SR 24 WB Off (to NB)/WB On (from SB) | **QC JOB #:** 10687105

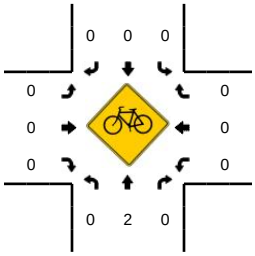
CITY/STATE: Lafayette, CA | **DATE:** Thu, Dec 01 2011

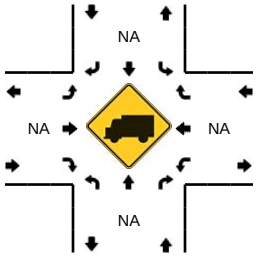


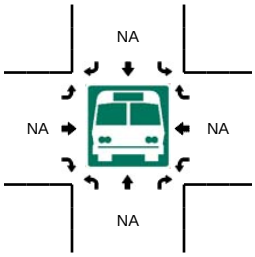
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM











15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				SR 24 WB Off (to NB)/WB On (Eastbound)				SR 24 WB Off (to NB)/WB On (Westbound)				(from SB) Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	294	0	0	0	133	73	0	0	0	0	0	0	0	142	0	642	
4:15 PM	0	284	0	0	0	116	76	0	0	0	0	0	0	0	123	0	599	
4:30 PM	0	301	0	0	0	132	81	0	0	0	0	0	0	0	164	0	678	
4:45 PM	0	281	0	0	0	126	80	0	0	0	0	0	0	0	164	0	651	2570
5:00 PM	0	277	0	0	0	131	82	0	0	0	0	0	0	0	142	0	632	2560
5:15 PM	0	334	0	0	0	149	110	0	0	0	0	0	0	0	107	0	700	2661
5:30 PM	0	277	0	0	0	131	100	0	0	0	0	0	0	0	148	0	656	2639
5:45 PM	0	268	0	0	0	111	87	0	0	0	0	0	0	0	141	0	607	2595

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1336	0	0	0	596	440	0	0	0	0	0	0	0	428	0	2800
Heavy Trucks	0	4	0		0	8	4		0	0	0		0	0	4		20
Pedestrians		0				0				0				0			0
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

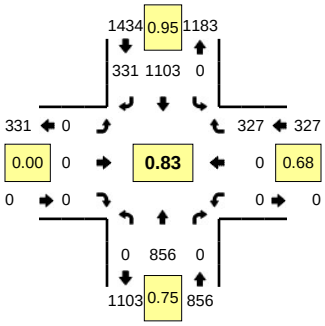
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- SR 24 EB Loop Ramps

QC JOB #: 10687101

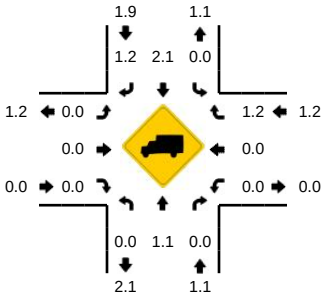
CITY/STATE: Lafayette, CA

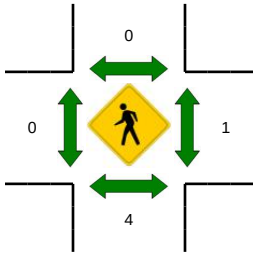
DATE: Thu, Dec 01 2011

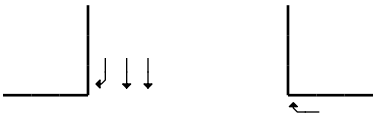


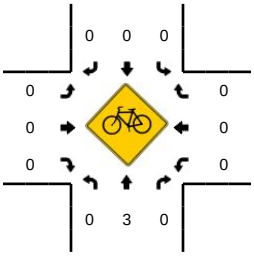
Peak-Hour: 7:30 AM -- 8:30 AM

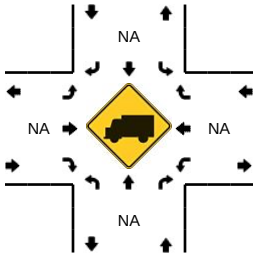
Peak 15-Min: 7:45 AM -- 8:00 AM

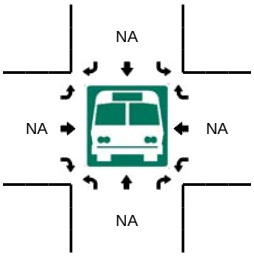












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				SR 24 EB Loop Ramps (Eastbound)				SR 24 EB Loop Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	90	0	0	0	134	78	0	0	0	0	0	0	0	35	0	337	
7:15 AM	0	138	0	0	0	239	97	0	0	0	0	0	0	0	39	0	513	
7:30 AM	0	225	0	0	0	222	95	0	0	0	0	0	0	0	91	0	633	
7:45 AM	0	284	0	0	0	295	85	0	0	0	0	0	0	0	120	0	784	2267
8:00 AM	0	171	0	0	0	305	73	0	0	0	0	0	0	0	64	0	613	2543
8:15 AM	0	176	0	0	0	281	78	0	0	0	0	0	0	0	52	0	587	2617
8:30 AM	0	159	0	0	0	238	87	0	0	0	0	0	0	0	28	0	512	2496
8:45 AM	0	161	0	0	0	275	87	0	0	0	0	0	0	0	59	0	582	2294

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1136	0	0	0	1180	340	0	0	0	0	0	0	0	480	0	3136
Heavy Trucks	0	8	0		0	8	12		0	0	0		0	0	4		32
Pedestrians		8				0				0				0			8
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:58 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

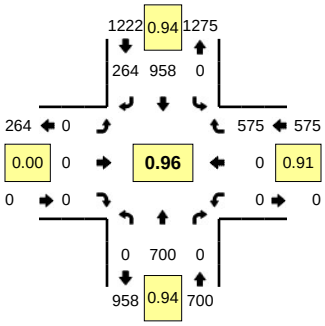
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- SR 24 EB Loop Ramps

QC JOB #: 10687103

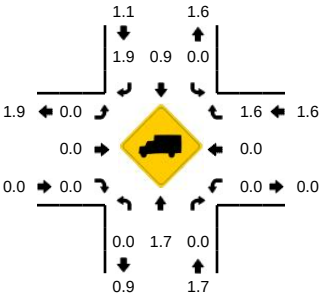
CITY/STATE: Lafayette, CA

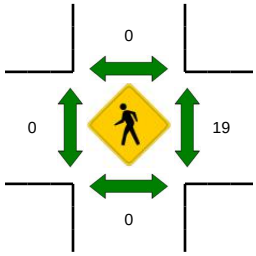
DATE: Thu, Dec 01 2011

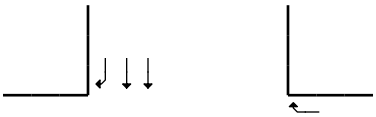


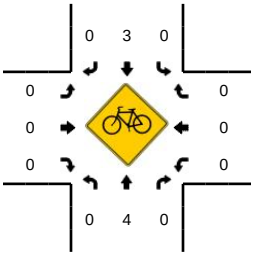
Peak-Hour: 3:00 PM -- 4:00 PM

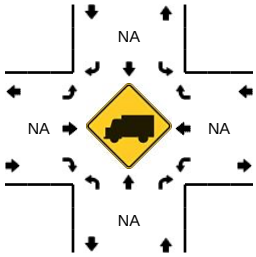
Peak 15-Min: 3:15 PM -- 3:30 PM

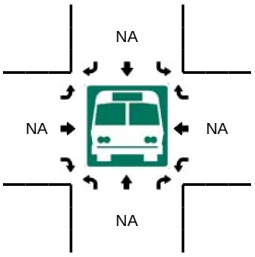












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				SR 24 EB Loop Ramps (Eastbound)				SR 24 EB Loop Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	0	137	0	0	0	193	61	0	0	0	0	0	0	0	65	0	456	
2:15 PM	0	132	0	0	0	256	61	0	0	0	0	0	0	0	98	0	547	
2:30 PM	0	125	0	0	0	190	66	0	0	0	0	0	0	0	94	0	475	
2:45 PM	0	154	0	0	0	231	73	0	0	0	0	0	0	0	107	0	565	2043
3:00 PM	0	179	0	0	0	239	53	0	0	0	0	0	0	0	130	0	601	2188
3:15 PM	0	186	0	0	0	248	79	0	0	0	0	0	0	0	140	0	653	2294
3:30 PM	0	189	0	0	0	235	65	0	0	0	0	0	0	0	147	0	636	2455
3:45 PM	0	146	0	0	0	236	67	0	0	0	0	0	0	0	158	0	607	2497

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	744	0	0	0	992	316	0	0	0	0	0	0	0	560	0	2612
Heavy Trucks	0	16	0		0	24	8		0	0	0		0	0	16		64
Pedestrians		0				0				0				52			52
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

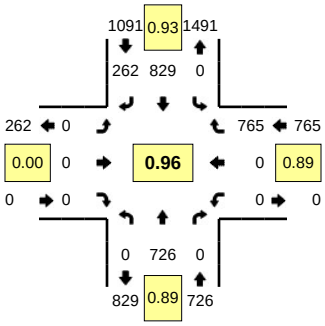
Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

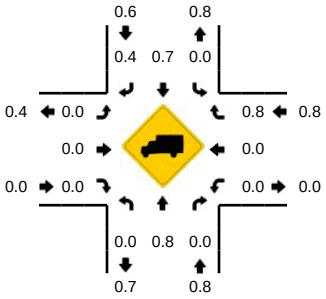
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

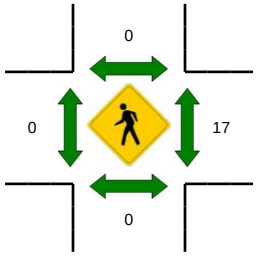
LOCATION: Pleasant Hill Rd -- SR 24 EB Loop Ramps | **QC JOB #:** 10687102

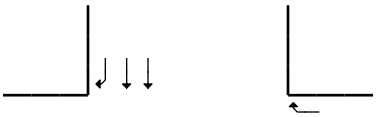
CITY/STATE: Lafayette, CA | **DATE:** Thu, Dec 01 2011

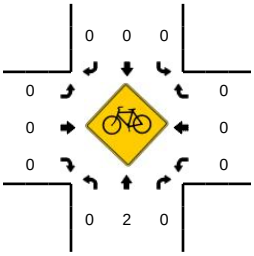


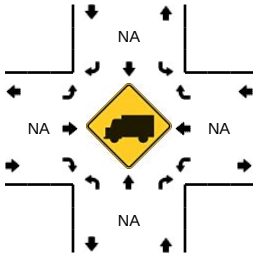
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

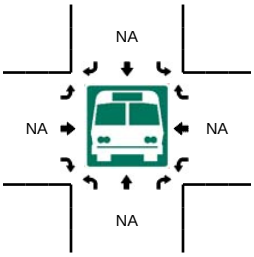












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				SR 24 EB Loop Ramps (Eastbound)				SR 24 EB Loop Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	197	0	0	0	171	57	0	0	0	0	0	0	0	174	0	599	
4:15 PM	0	180	0	0	0	210	56	0	0	0	0	0	0	0	174	0	620	
4:30 PM	0	178	0	0	0	208	52	0	0	0	0	0	0	0	195	0	633	
4:45 PM	0	158	0	0	0	210	63	0	0	0	0	0	0	0	184	0	615	2467
5:00 PM	0	185	0	0	0	188	71	0	0	0	0	0	0	0	215	0	659	2527
5:15 PM	0	205	0	0	0	223	76	0	0	0	0	0	0	0	171	0	675	2582
5:30 PM	0	157	0	0	0	225	61	0	0	0	0	0	0	0	172	0	615	2564
5:45 PM	0	148	0	0	0	204	52	0	0	0	0	0	0	0	142	0	546	2495

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	820	0	0	0	892	304	0	0	0	0	0	0	0	684	0	2700
Heavy Trucks	0	4	0		0	12	0		0	0	0		0	0	8		24
Pedestrians		0				0				0				12			12
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:58 PM

Type of peak hour being reported: Intersection Peak

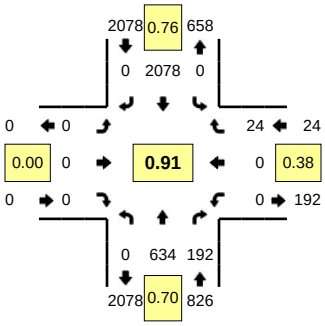
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- Acalanes High School Dwy

QC JOB #: 10687113

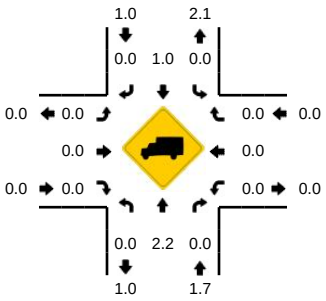
CITY/STATE: Lafayette, CA

DATE: Thu, Dec 01 2011

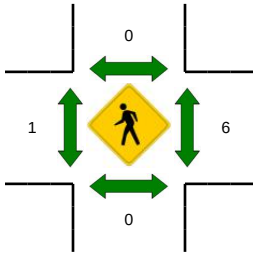


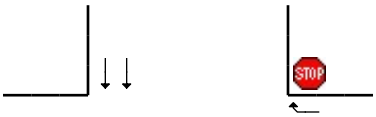
Peak-Hour: 7:15 AM -- 8:15 AM

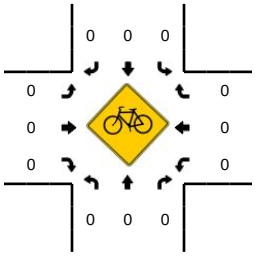
Peak 15-Min: 7:15 AM -- 7:30 AM

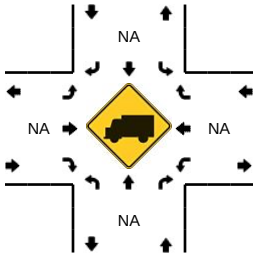


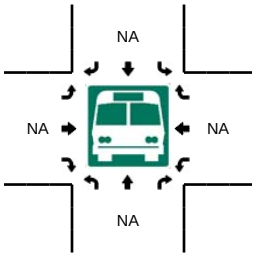
Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES











15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Acalanes High School Dwy (Eastbound)				Acalanes High School Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	90	3	0	0	485	0	0	0	0	0	0	0	0	0	0	578	
7:15 AM	0	106	11	0	0	683	0	0	0	0	0	0	0	0	2	0	802	
7:30 AM	0	164	60	0	0	531	0	0	0	0	0	0	0	0	4	0	759	
7:45 AM	0	201	117	0	0	370	0	0	0	0	0	0	0	0	16	0	704	2843
8:00 AM	0	163	4	0	0	494	0	0	0	0	0	0	0	0	2	0	663	2928
8:15 AM	0	175	7	0	0	563	0	0	0	0	0	0	0	0	1	0	746	2872
8:30 AM	0	136	2	0	0	432	0	0	0	0	0	0	0	0	2	0	572	2685
8:45 AM	0	173	6	0	0	417	0	0	0	0	0	0	0	0	4	0	600	2581

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	424	44	0	0	2732	0	0	0	0	0	0	0	0	8	0	3208
Heavy Trucks	0	24	0		0	24	0		0	0	0		0	0	0		48
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

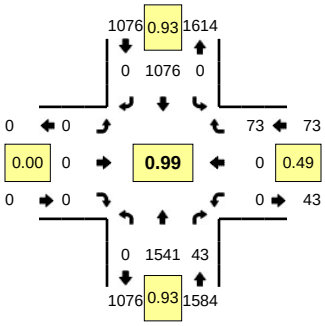
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- Acalanes High School Dwy

QC JOB #: 10687115

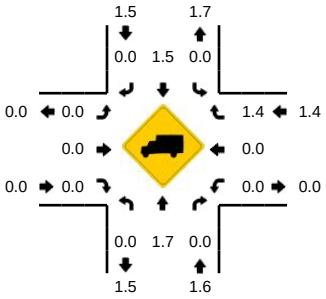
CITY/STATE: Lafayette, CA

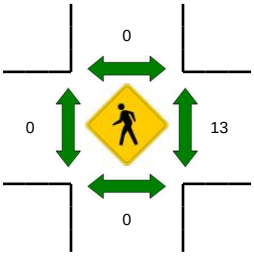
DATE: Thu, Dec 01 2011

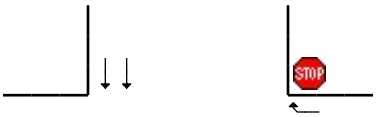


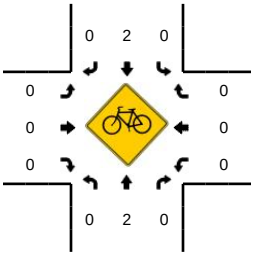
Peak-Hour: 3:00 PM -- 4:00 PM

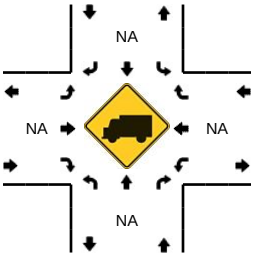
Peak 15-Min: 3:15 PM -- 3:30 PM

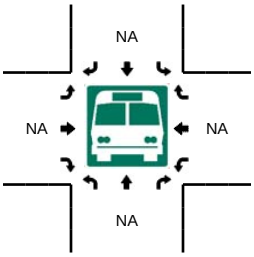












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Acalanes High School Dwy (Eastbound)				Acalanes High School Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	0	225	8	0	0	204	0	0	0	0	0	0	0	0	7	0	444	
2:15 PM	0	326	7	0	0	239	0	0	0	0	0	0	0	0	42	0	614	
2:30 PM	0	303	4	0	0	273	0	0	0	0	0	0	0	0	4	0	584	
2:45 PM	0	299	11	0	0	309	0	0	0	0	0	0	0	0	4	0	623	2265
3:00 PM	0	348	20	0	0	282	0	0	0	0	0	0	0	0	32	0	682	2503
3:15 PM	0	362	12	0	0	290	0	0	0	0	0	0	0	0	26	0	690	2579
3:30 PM	0	411	5	0	0	245	0	0	0	0	0	0	0	0	11	0	672	2667
3:45 PM	0	420	6	0	0	259	0	0	0	0	0	0	0	0	4	0	689	2733

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1448	48	0	0	1160	0	0	0	0	0	0	0	0	104	0	2760
Heavy Trucks	0	24	0		0	28	0		0	0	0		0	0	0		52
Pedestrians		0				0				0				16			16
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

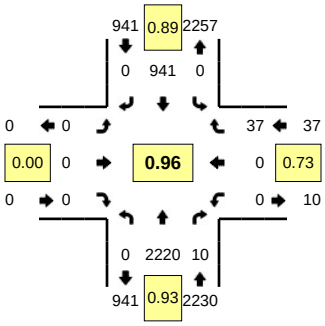
Method for determining peak hour: Total Entering Volume

LOCATION: Pleasant Hill Rd -- Acalanes High School Dwy

QC JOB #: 10687114

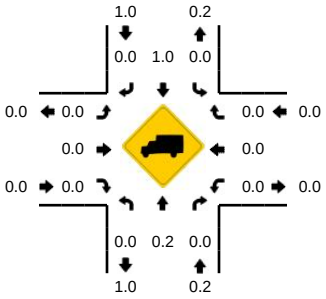
CITY/STATE: Lafayette, CA

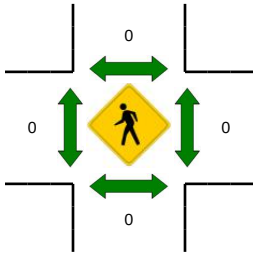
DATE: Thu, Dec 01 2011

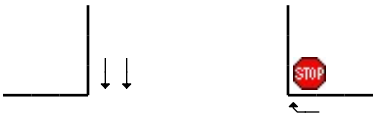


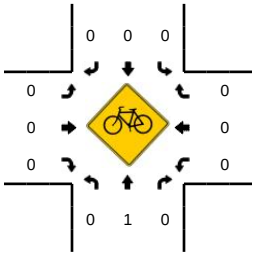
Peak-Hour: 5:00 PM -- 6:00 PM

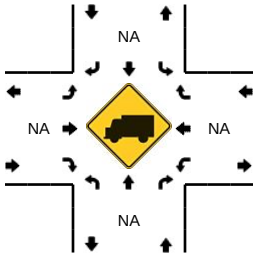
Peak 15-Min: 5:30 PM -- 5:45 PM

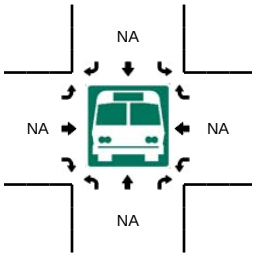












15-Min Count Period Beginning At	Pleasant Hill Rd (Northbound)				Pleasant Hill Rd (Southbound)				Acalanes High School Dwy (Eastbound)				Acalanes High School Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	488	2	0	0	190	0	0	0	0	0	0	0	0	8	0	688	
4:15 PM	0	494	2	0	0	194	0	0	0	0	0	0	0	0	7	0	697	
4:30 PM	0	535	7	0	0	236	0	0	0	0	0	0	0	0	7	0	785	
4:45 PM	0	519	2	0	0	220	0	0	0	0	0	0	0	0	10	0	751	2921
5:00 PM	0	563	1	0	0	225	0	0	0	0	0	0	0	0	7	0	796	3029
5:15 PM	0	537	6	0	0	267	0	0	0	0	0	0	0	0	15	0	825	3157
5:30 PM	0	597	1	0	0	225	0	0	0	0	0	0	0	0	12	0	835	3207
5:45 PM	0	523	2	0	0	224	0	0	0	0	0	0	0	0	3	0	752	3208

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	2388	4	0	0	900	0	0	0	0	0	0	0	0	48	0	3340
Heavy Trucks	0	4	0		0	8	0		0	0	0		0	0	0		12
Pedestrians		0				0				0				0			0
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/28/2011 2:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Appendix C – Level of Service Worksheets: Existing Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	39	0	0	0	17	598	0	0	1529	10
Future Volume (veh/h)	0	0	39	0	0	0	17	598	0	0	1529	10
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	0	1863	1900
Adj Flow Rate, veh/h	0	0	60	0	0	0	22	757	0	0	1935	13
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.65	0.65	0.65	0.92	0.92	0.92	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	75	0	88	0	347	2974	0	0	2098	14
Arrive On Green	0.00	0.00	0.05	0.00	0.00	0.00	0.20	0.84	0.00	0.00	0.58	0.58
Sat Flow, veh/h	0	0	1583	0	1863	0	1774	3632	0	0	3697	24
Grp Volume(v), veh/h	0	0	60	0	0	0	22	757	0	0	949	999
Grp Sat Flow(s),veh/h/ln	0	0	1583	0	1863	0	1774	1770	0	0	1770	1858
Q Serve(g_s), s	0.0	0.0	3.0	0.0	0.0	0.0	0.8	3.5	0.0	0.0	38.7	38.9
Cycle Q Clear(g_c), s	0.0	0.0	3.0	0.0	0.0	0.0	0.8	3.5	0.0	0.0	38.7	38.9
Prop In Lane	0.00		1.00	0.00		0.00	1.00		0.00	0.00		0.01
Lane Grp Cap(c), veh/h	0	0	75	0	88	0	347	2974	0	0	1030	1082
V/C Ratio(X)	0.00	0.00	0.80	0.00	0.00	0.00	0.06	0.25	0.00	0.00	0.92	0.92
Avail Cap(c_a), veh/h	0	0	317	0	373	0	347	2974	0	0	1040	1092
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	37.7	0.0	0.0	0.0	26.2	1.3	0.0	0.0	15.1	15.1
Incr Delay (d2), s/veh	0.0	0.0	13.6	0.0	0.0	0.0	0.0	0.2	0.0	0.0	14.5	14.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.6	0.0	0.0	0.0	0.4	1.8	0.0	0.0	22.9	24.0
LnGrp Delay(d),s/veh	0.0	0.0	51.3	0.0	0.0	0.0	26.2	1.5	0.0	0.0	29.6	29.3
LnGrp LOS			D				C	A			C	C
Approach Vol, veh/h		60			0			779			1948	
Approach Delay, s/veh		51.3			0.0			2.2			29.4	
Approach LOS		D						A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		72.2		7.8	20.7	51.6		7.8
Change Period (Y+Rc), s		5.0		4.0	5.0	* 5		4.0
Max Green Setting (Gmax), s		55.0		16.0	4.0	* 47		16.0
Max Q Clear Time (g_c+I1), s		5.5		0.0	2.8	40.9		5.0
Green Ext Time (p_c), s		8.6		0.0	0.0	5.7		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	22.3
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	6	20	0	10	0	673	14	8	1701	1
Future Volume (veh/h)	2	0	6	20	0	10	0	673	14	8	1701	1
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	2	0	7	31	0	0	0	708	0	9	1810	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.65	0.65	0.65	0.95	0.95	0.95	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	1	38	121	0	44	2	2897	1296	16	3086	1381
Arrive On Green	0.03	0.00	0.03	0.03	0.00	0.00	0.00	0.82	0.00	0.01	0.87	0.00
Sat Flow, veh/h	356	32	1356	1469	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	9	0	0	31	0	0	0	708	0	9	1810	0
Grp Sat Flow(s),veh/h/ln	1744	0	0	1469	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.0	1.4	0.0	0.0	0.0	4.1	0.0	0.5	12.1	0.0
Cycle Q Clear(g_c), s	0.5	0.0	0.0	1.9	0.0	0.0	0.0	4.1	0.0	0.5	12.1	0.0
Prop In Lane	0.22		0.78	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	0	0	121	0	44	2	2897	1296	16	3086	1381
V/C Ratio(X)	0.09	0.00	0.00	0.26	0.00	0.00	0.00	0.24	0.00	0.57	0.59	0.00
Avail Cap(c_a), veh/h	500	0	0	487	0	457	79	2897	1296	79	3086	1381
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.7	0.0	0.0	43.4	0.0	0.0	0.0	1.9	0.0	44.4	1.5	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.4	0.0	0.0	0.0	0.2	0.0	11.2	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.8	0.0	0.0	0.0	2.0	0.0	0.3	5.9	0.0
LnGrp Delay(d),s/veh	43.0	0.0	0.0	43.8	0.0	0.0	0.0	2.1	0.0	55.7	2.3	0.0
LnGrp LOS	D			D				A		E	A	
Approach Vol, veh/h		9			31			708			1819	
Approach Delay, s/veh		43.0			43.8			2.1			2.6	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	78.7		6.5	0.0	83.5		6.5
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	4.0	47.0		26.0	4.0	47.0		26.0
Max Q Clear Time (g_c+I1), s	2.5	6.1		3.9	0.0	14.1		2.5
Green Ext Time (p_c), s	0.0	7.7		0.1	0.0	24.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	3.1
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	257	108	674	1808	11
Future Volume (veh/h)	25	257	108	674	1808	11
Number	3	18	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	34	0	129	802	2289	14
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.74	0.74	0.84	0.84	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	43	39	133	3187	2804	1254
Arrive On Green	0.02	0.00	0.08	0.90	0.79	0.79
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	34	0	129	802	2289	14
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	2.3	0.0	8.7	3.5	45.6	0.2
Cycle Q Clear(g_c), s	2.3	0.0	8.7	3.5	45.6	0.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	43	39	133	3187	2804	1254
V/C Ratio(X)	0.78	0.00	0.97	0.25	0.82	0.01
Avail Cap(c_a), veh/h	340	303	133	3187	2804	1254
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.2	0.0	55.4	0.8	7.3	2.6
Incr Delay (d2), s/veh	20.1	0.0	68.1	0.2	2.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	6.8	1.8	22.7	0.1
LnGrp Delay(d),s/veh	78.4	0.0	123.5	1.0	10.1	2.6
LnGrp LOS	E		F	A	B	A
Approach Vol, veh/h	34			931	2303	
Approach Delay, s/veh	78.4			17.9	10.0	
Approach LOS	E			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		113.1			13.0	100.1		6.9
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0
Max Green Setting (Gmax), s		88.0			9.0	75.0		23.0
Max Q Clear Time (g_c+I1), s		5.5			10.7	47.6		4.3
Green Ext Time (p_c), s		9.6			0.0	24.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	13.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	6	137	76	28	11	116	572	53	45	2141	82
Future Volume (veh/h)	67	6	137	76	28	11	116	572	53	45	2141	82
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1863	1520	1520	1520
Adj Flow Rate, veh/h	76	7	0	101	37	15	123	609	56	46	2207	85
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.75	0.75	0.75	0.94	0.94	0.94	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	171	13	167	155	42	17	103	2769	1239	55	2187	978
Arrive On Green	0.11	0.11	0.00	0.11	0.11	0.11	0.06	0.78	0.78	0.04	0.76	0.76
Sat Flow, veh/h	1184	121	1583	1092	400	162	1632	3539	1583	1447	2887	1292
Grp Volume(v), veh/h	83	0	0	153	0	0	123	609	56	46	2207	85
Grp Sat Flow(s),veh/h/ln	1305	0	1583	1654	0	0	1632	1770	1583	1447	1444	1292
Q Serve(g_s), s	0.0	0.0	0.0	4.3	0.0	0.0	9.5	6.8	1.2	4.7	113.6	2.6
Cycle Q Clear(g_c), s	9.2	0.0	0.0	13.5	0.0	0.0	9.5	6.8	1.2	4.7	113.6	2.6
Prop In Lane	0.92		1.00	0.66		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	183	0	167	214	0	0	103	2769	1239	55	2187	978
V/C Ratio(X)	0.45	0.00	0.00	0.71	0.00	0.00	1.19	0.22	0.05	0.83	1.01	0.09
Avail Cap(c_a), veh/h	268	0	264	307	0	0	103	2769	1239	101	2187	978
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.1	0.0	0.0	65.8	0.0	0.0	70.3	4.3	3.7	71.6	18.2	4.7
Incr Delay (d2), s/veh	0.6	0.0	0.0	1.7	0.0	0.0	148.3	0.2	0.1	11.0	21.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	6.3	0.0	0.0	8.5	3.4	0.5	2.1	50.9	0.9
LnGrp Delay(d),s/veh	64.8	0.0	0.0	67.5	0.0	0.0	218.6	4.5	3.8	82.7	39.7	4.9
LnGrp LOS	E			E			F	A	A	F	F	A
Approach Vol, veh/h		83			153			788			2338	
Approach Delay, s/veh		64.8			67.5			37.8			39.3	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.2	121.5		19.3	13.0	117.7		19.3
Change Period (Y+Rc), s	3.5	4.1		3.5	3.5	4.1		3.5
Max Green Setting (Gmax), s	10.5	103.4		25.0	9.5	104.4		25.0
Max Q Clear Time (g_c+I1), s	6.7	8.8		15.5	11.5	115.6		11.2
Green Ext Time (p_c), s	0.0	7.0		0.3	0.0	0.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	40.9
HCM 2010 LOS	D

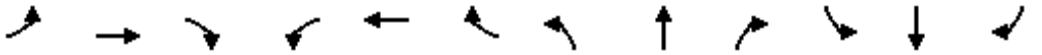
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	55	63	270	115	48	162	654	208	141	1628	632
Future Volume (veh/h)	180	55	63	270	115	48	162	654	208	141	1628	632
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.91	1.00		0.92
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1471	1471	1471
Adj Flow Rate, veh/h	333	102	117	288	334	72	253	1022	325	181	2087	810
Adj No. of Lanes	2	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.54	0.54	0.54	0.67	0.67	0.67	0.64	0.64	0.64	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	504	116	133	306	321	272	147	1495	610	198	1344	555
Arrive On Green	0.15	0.15	0.15	0.17	0.17	0.17	0.08	0.42	0.42	0.14	0.48	0.48
Sat Flow, veh/h	3442	791	907	1774	1863	1578	1774	3539	1445	1401	2794	1154
Grp Volume(v), veh/h	333	0	219	288	334	72	253	1022	325	181	2087	810
Grp Sat Flow(s),veh/h/ln	1721	0	1698	1774	1863	1578	1774	1770	1445	1401	1397	1154
Q Serve(g_s), s	13.3	0.0	18.3	23.3	25.0	5.7	12.0	34.0	24.3	18.5	69.8	69.8
Cycle Q Clear(g_c), s	13.3	0.0	18.3	23.3	25.0	5.7	12.0	34.0	24.3	18.5	69.8	69.8
Prop In Lane	1.00		0.53	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	504	0	249	306	321	272	147	1495	610	198	1344	555
V/C Ratio(X)	0.66	0.00	0.88	0.94	1.04	0.26	1.72	0.68	0.53	0.91	1.55	1.46
Avail Cap(c_a), veh/h	593	0	293	306	321	272	147	1495	610	222	1344	555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	0.0	60.6	59.3	60.0	52.0	66.5	34.0	31.2	61.4	37.6	37.6
Incr Delay (d2), s/veh	1.3	0.0	20.6	35.8	61.0	0.2	352.4	2.6	3.3	33.8	252.4	216.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	0.0	10.0	14.5	18.3	2.5	20.2	17.1	10.2	9.0	74.0	55.6
LnGrp Delay(d),s/veh	59.8	0.0	81.2	95.1	121.0	52.2	418.9	36.6	34.5	95.1	290.0	254.1
LnGrp LOS	E		F	F	F	D	F	D	C	F	F	F
Approach Vol, veh/h		552			694			1600			3078	
Approach Delay, s/veh		68.3			103.1			96.6			269.1	
Approach LOS		E			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.5	66.2		29.0	16.0	74.8		25.2
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	23.0	55.0		25.0	12.0	66.0		25.0
Max Q Clear Time (g_c+I1), s	20.5	36.0		27.0	14.0	71.8		20.3
Green Ext Time (p_c), s	0.1	8.4		0.0	0.0	0.0		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	184.4
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	244	248	69	0	0	0	257	790	455	0	565	607
Future Volume (veh/h)	244	248	69	0	0	0	257	790	455	0	565	607
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				1863	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	271	276	77				268	823	474	0	601	0
Adj No. of Lanes	1	2	0				1	2	1	0	2	1
Peak Hour Factor	0.90	0.90	0.90				0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				2	2	2	0	2	2
Cap, veh/h	347	537	147				304	2368	1059	0	1559	697
Arrive On Green	0.20	0.20	0.20				0.17	0.67	0.67	0.00	0.44	0.00
Sat Flow, veh/h	1774	2747	752				1774	3539	1583	0	3632	1583
Grp Volume(v), veh/h	271	176	177				268	823	474	0	601	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1730				1774	1770	1583	0	1770	1583
Q Serve(g_s), s	10.2	6.2	6.4				10.3	7.0	9.9	0.0	8.0	0.0
Cycle Q Clear(g_c), s	10.2	6.2	6.4				10.3	7.0	9.9	0.0	8.0	0.0
Prop In Lane	1.00		0.43				1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	347	346	338				304	2368	1059	0	1559	697
V/C Ratio(X)	0.78	0.51	0.52				0.88	0.35	0.45	0.00	0.39	0.00
Avail Cap(c_a), veh/h	646	645	630				304	2368	1059	0	1559	697
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.84	0.84	0.84	0.00	1.00	0.00
Uniform Delay (d), s/veh	26.7	25.2	25.2				28.3	5.0	5.5	0.0	13.2	0.0
Incr Delay (d2), s/veh	1.5	0.4	0.5				20.7	0.3	1.1	0.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	3.1	3.1				6.8	3.4	4.6	0.0	4.1	0.0
LnGrp Delay(d),s/veh	28.2	25.6	25.7				49.0	5.3	6.6	0.0	13.9	0.0
LnGrp LOS	C	C	C				D	A	A		B	
Approach Vol, veh/h		624						1565			601	
Approach Delay, s/veh		26.8						13.2			13.9	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		51.8		18.2	16.0	35.8		
Change Period (Y+Rc), s		5.0		4.5	4.0	5.0		
Max Green Setting (Gmax), s		35.0		25.5	12.0	19.0		
Max Q Clear Time (g_c+I1), s		11.9		12.2	12.3	10.0		
Green Ext Time (p_c), s		11.2		1.5	0.0	3.3		

Intersection Summary		
HCM 2010 Ctrl Delay		16.4
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	37	152	14	0	156	0	1172	23	92	515	0
Future Volume (veh/h)	18	37	152	14	0	156	0	1172	23	92	515	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	0	1863	0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	21	43	175	16	0	181	0	1208	24	96	536	0
Adj No. of Lanes	0	1	1	1	0	1	0	3	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87	0.86	0.86	0.86	0.97	0.97	0.97	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	100	204	262	0	0	0	0	2010	40	127	2077	0
Arrive On Green	0.17	0.17	0.17	0.00	0.00	0.00	0.00	0.39	0.39	0.07	0.59	0.00
Sat Flow, veh/h	601	1231	1583		0		0	5301	102	1774	3632	0
Grp Volume(v), veh/h	64	0	175		0.0		0	798	434	96	536	0
Grp Sat Flow(s),veh/h/ln	1833	0	1583				0	1695	1845	1774	1770	0
Q Serve(g_s), s	1.0	0.0	3.4				0.0	6.0	6.1	1.7	2.4	0.0
Cycle Q Clear(g_c), s	1.0	0.0	3.4				0.0	6.0	6.1	1.7	2.4	0.0
Prop In Lane	0.33		1.00				0.00		0.06	1.00		0.00
Lane Grp Cap(c), veh/h	303	0	262				0	1328	722	127	2077	0
V/C Ratio(X)	0.21	0.00	0.67				0.00	0.60	0.60	0.76	0.26	0.00
Avail Cap(c_a), veh/h	1021	0	882				0	1679	914	275	2739	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	11.7	0.0	12.6				0.0	7.8	7.8	14.7	3.2	0.0
Incr Delay (d2), s/veh	0.3	0.0	2.9				0.0	0.4	0.8	8.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.7				0.0	2.9	3.2	1.1	1.1	0.0
LnGrp Delay(d),s/veh	12.0	0.0	15.6				0.0	8.3	8.6	23.6	3.3	0.0
LnGrp LOS	B		B					A	A	C	A	
Approach Vol, veh/h		239						1232			632	
Approach Delay, s/veh		14.6						8.4			6.4	
Approach LOS		B						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		9.3		23.0			6.3	16.7
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0
Max Green Setting (Gmax), s		18.0		25.0			5.0	16.0
Max Q Clear Time (g_c+I1), s		5.4		4.4			3.7	8.1
Green Ext Time (p_c), s		0.7		3.4			0.0	4.6

Intersection Summary	
HCM 2010 Ctrl Delay	8.5
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	287	1076	167	532	4	312	16	97	10	25	31
Future Volume (veh/h)	30	287	1076	167	532	4	312	16	97	10	25	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	33	312	0	182	578	4	351	0	0	11	27	34
Adj No. of Lanes	1	1	1	1	1	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	533	453	234	718	5	547	0	244	23	56	70
Arrive On Green	0.03	0.29	0.00	0.13	0.39	0.39	0.15	0.00	0.00	0.09	0.09	0.09
Sat Flow, veh/h	1774	1863	1583	1774	1848	13	3548	0	1583	261	640	806
Grp Volume(v), veh/h	33	312	0	182	0	582	351	0	0	72	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1860	1774	0	1583	1707	0	0
Q Serve(g_s), s	0.9	6.8	0.0	4.7	0.0	13.1	4.4	0.0	0.0	1.9	0.0	0.0
Cycle Q Clear(g_c), s	0.9	6.8	0.0	4.7	0.0	13.1	4.4	0.0	0.0	1.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.15		0.47
Lane Grp Cap(c), veh/h	53	533	453	234	0	723	547	0	244	149	0	0
V/C Ratio(X)	0.62	0.59	0.00	0.78	0.00	0.81	0.64	0.00	0.00	0.48	0.00	0.00
Avail Cap(c_a), veh/h	151	832	707	415	0	1108	1207	0	539	581	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.6	14.4	0.0	19.7	0.0	12.8	18.7	0.0	0.0	20.5	0.0	0.0
Incr Delay (d2), s/veh	11.5	1.0	0.0	5.5	0.0	2.6	1.3	0.0	0.0	2.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.6	0.0	2.6	0.0	7.1	2.2	0.0	0.0	1.0	0.0	0.0
LnGrp Delay(d),s/veh	34.0	15.4	0.0	25.2	0.0	15.3	19.9	0.0	0.0	22.9	0.0	0.0
LnGrp LOS	C	B		C		B	B			C		
Approach Vol, veh/h		345			764			351			72	
Approach Delay, s/veh		17.2			17.7			19.9			22.9	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		11.3	10.2	17.5		8.1	5.4	22.3
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		16.0	11.0	21.0		16.0	4.0	28.0
Max Q Clear Time (g_c+I1), s		6.4	6.7	8.8		3.9	2.9	15.1
Green Ext Time (p_c), s		0.9	0.2	1.4		0.2	0.0	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	18.3
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	645	339	344	574	4	1054	10	642	22	7	11
Future Volume (veh/h)	1	645	339	344	574	4	1054	10	642	22	7	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	1	709	373	391	652	5	1117	0	676	32	10	16
Adj No. of Lanes	1	2	1	1	2	0	2	0	2	0	1	0
Peak Hour Factor	0.91	0.91	0.91	0.88	0.88	0.88	0.95	0.95	0.95	0.69	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	2	676	302	387	1469	11	1064	0	1641	139	43	69
Arrive On Green	0.00	0.19	0.19	0.22	0.41	0.41	0.30	0.00	0.30	0.15	0.15	0.15
Sat Flow, veh/h	1774	3539	1583	1774	3600	28	3548	0	3167	955	298	477
Grp Volume(v), veh/h	1	709	373	391	320	337	1117	0	676	58	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1858	1774	0	1583	1731	0	0
Q Serve(g_s), s	0.1	21.0	21.0	24.0	14.4	14.4	33.0	0.0	14.4	3.3	0.0	0.0
Cycle Q Clear(g_c), s	0.1	21.0	21.0	24.0	14.4	14.4	33.0	0.0	14.4	3.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.55		0.28
Lane Grp Cap(c), veh/h	2	676	302	387	722	758	1064	0	1641	252	0	0
V/C Ratio(X)	0.52	1.05	1.23	1.01	0.44	0.44	1.05	0.00	0.41	0.23	0.00	0.00
Avail Cap(c_a), veh/h	65	676	302	387	722	758	1064	0	1641	252	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	54.9	44.5	44.5	43.0	23.5	23.5	38.5	0.0	16.2	41.6	0.0	0.0
Incr Delay (d2), s/veh	132.4	48.3	130.6	48.3	0.4	0.4	41.5	0.0	0.8	2.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	14.8	20.1	16.9	7.1	7.5	22.2	0.0	6.5	1.7	0.0	0.0
LnGrp Delay(d),s/veh	187.3	92.8	175.1	91.4	24.0	23.9	80.0	0.0	17.0	43.7	0.0	0.0
LnGrp LOS	F	F	F	F	C	C	F		B	D		
Approach Vol, veh/h		1083			1048			1793			58	
Approach Delay, s/veh		121.2			49.1			56.2			43.7	
Approach LOS		F			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		37.0	28.0	25.0		20.0	4.1	48.9
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		33.0	24.0	21.0		16.0	4.0	41.0
Max Q Clear Time (g_c+I1), s		35.0	26.0	23.0		5.3	2.1	16.4
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	4.2

Intersection Summary	
HCM 2010 Ctrl Delay	71.8
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	11240	11206	11105	11218	10971	11146
Vehs Exited	10705	10618	10545	10681	10477	10604
Starting Vehs	556	530	570	551	581	554
Ending Vehs	1091	1118	1130	1088	1075	1093
Travel Distance (mi)	6844	6887	6806	6807	6746	6818
Travel Time (hr)	2369.0	2364.7	2556.1	2420.9	2503.3	2442.8
Total Delay (hr)	2138.7	2133.2	2326.7	2191.3	2276.2	2213.2
Total Stops	20306	20290	20045	19901	19724	20049
Fuel Used (gal)	723.4	723.0	765.3	734.0	751.1	739.3

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	11240	11206	11105	11218	10971	11146
Vehs Exited	10705	10618	10545	10681	10477	10604
Starting Vehs	556	530	570	551	581	554
Ending Vehs	1091	1118	1130	1088	1075	1093
Travel Distance (mi)	6844	6887	6806	6807	6746	6818
Travel Time (hr)	2369.0	2364.7	2556.1	2420.9	2503.3	2442.8
Total Delay (hr)	2138.7	2133.2	2326.7	2191.3	2276.2	2213.2
Total Stops	20306	20290	20045	19901	19724	20049
Fuel Used (gal)	723.4	723.0	765.3	734.0	751.1	739.3

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Old Tunnel Road	7	56.3	147.0	0.1	6
SR 24 WB On Ramp	6	11.3	17.6	0.1	12
	17	6.2	11.6	0.1	20
	16	1.0	9.3	0.1	27
	15	1.2	10.0	0.1	37
Acalanes Avenue	14	6.5	14.6	0.1	15
	11	13.3	18.8	0.1	10
Stanley Boulevard	5	24.7	350.3	0.1	8
School Dwy.	20	2.8	8.4	0.1	26
School Dwy.	19	2.5	16.3	0.1	30
	18	0.6	6.0	0.1	36
	39	3.8	13.3	0.1	25
Quandt Road	4	15.1	25.7	0.1	17
	37	1.1	7.5	0.1	34
Reliez Valle Road	3	1.1	6.7	0.1	39
	58	0.5	8.6	0.1	38
Greenvalley Drive	2	1.7	21.6	0.2	39
	22	0.9	16.6	0.2	38
Rancho View Drive	1	2.4	21.3	0.2	37
Total		152.8	731.3	1.9	21

Arterial Level of Service: SB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Rancho View Drive	1	120.9	695.1	0.2	4
	22	168.8	190.8	0.2	4
Greenvalley Drive	2	167.8	184.6	0.2	3
	58	254.5	277.6	0.2	3
Reliez Valle Road	3	119.0	776.2	0.1	3
	37	59.5	66.7	0.1	4
Springhill Road	4	69.4	77.7	0.1	3
	39	105.4	117.5	0.1	4
	18	95.4	191.7	0.1	3
School Dwy.	19	63.7	132.2	0.1	3
School Dwy.	20	122.5	135.8	0.1	4
Deer Hill Road	5	50.0	578.4	0.1	4
	11	3.0	10.3	0.1	23
Acalanes Avenue	14	1.9	7.1	0.1	27
	15	5.5	12.1	0.1	19
	16	4.8	13.2	0.1	28
	17	3.5	12.2	0.1	20
Mt. Diablo Boulevard	6	12.0	18.2	0.1	12
SR 24 EB Off Ramp	7	7.3	13.4	0.1	16
Total		1434.8	3510.8	2.0	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	0	18	0	0	1	31	1484	0	0	852	14
Future Volume (veh/h)	22	0	18	0	0	1	31	1484	0	0	852	14
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	0	1863	1900
Adj Flow Rate, veh/h	33	0	27	0	0	4	35	1686	0	0	888	15
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.67	0.67	0.67	0.25	0.25	0.25	0.88	0.88	0.88	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	133	0	32	0	0	81	663	2827	0	0	1217	21
Arrive On Green	0.05	0.00	0.05	0.00	0.00	0.05	0.37	0.80	0.00	0.00	0.34	0.34
Sat Flow, veh/h	776	0	635	0	0	1583	1774	3632	0	0	3655	60
Grp Volume(v), veh/h	60	0	0	0	0	4	35	1686	0	0	441	462
Grp Sat Flow(s),veh/h/ln	1411	0	0	0	0	1583	1774	1770	0	0	1770	1852
Q Serve(g_s), s	2.4	0.0	0.0	0.0	0.0	0.1	0.8	11.0	0.0	0.0	13.1	13.1
Cycle Q Clear(g_c), s	2.6	0.0	0.0	0.0	0.0	0.1	0.8	11.0	0.0	0.0	13.1	13.1
Prop In Lane	0.55		0.45	0.00		1.00	1.00		0.00	0.00		0.03
Lane Grp Cap(c), veh/h	165	0	0	0	0	81	663	2827	0	0	604	633
V/C Ratio(X)	0.36	0.00	0.00	0.00	0.00	0.05	0.05	0.60	0.00	0.00	0.73	0.73
Avail Cap(c_a), veh/h	484	0	0	0	0	422	663	2827	0	0	767	803
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	28.3	0.0	0.0	0.0	0.0	27.1	12.0	2.3	0.0	0.0	17.3	17.3
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.9	0.0	0.0	7.6	7.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	0.1	0.4	5.5	0.0	0.0	7.6	7.9
LnGrp Delay(d),s/veh	29.3	0.0	0.0	0.0	0.0	27.2	12.0	3.3	0.0	0.0	24.9	24.6
LnGrp LOS	C					C	B	A			C	C
Approach Vol, veh/h		60			4			1721			903	
Approach Delay, s/veh		29.3			27.2			3.4			24.7	
Approach LOS		C			C			A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		52.9		7.1	27.4	25.5		7.1
Change Period (Y+Rc), s		5.0		4.0	5.0	* 5		4.0
Max Green Setting (Gmax), s		35.0		16.0	5.0	* 26		16.0
Max Q Clear Time (g_c+I1), s		13.0		2.1	2.8	15.1		4.6
Green Ext Time (p_c), s		16.4		0.0	0.0	5.4		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	11.2
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	5	46	0	20	11	1511	60	40	834	0
Future Volume (veh/h)	2	0	5	46	0	20	11	1511	60	40	834	0
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	4	0	10	64	0	0	12	1679	0	42	869	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.50	0.50	0.50	0.72	0.72	0.72	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	11	69	173	0	91	21	2653	1187	54	2719	1216
Arrive On Green	0.06	0.00	0.06	0.06	0.00	0.00	0.01	0.75	0.00	0.03	0.77	0.00
Sat Flow, veh/h	296	186	1205	1452	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	14	0	0	64	0	0	12	1679	0	42	869	0
Grp Sat Flow(s),veh/h/ln	1686	0	0	1452	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.0	2.8	0.0	0.0	0.5	18.1	0.0	1.9	6.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	0.0	3.4	0.0	0.0	0.5	18.1	0.0	1.9	6.0	0.0
Prop In Lane	0.29		0.71	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	155	0	0	173	0	91	21	2653	1187	54	2719	1216
V/C Ratio(X)	0.09	0.00	0.00	0.37	0.00	0.00	0.58	0.63	0.00	0.78	0.32	0.00
Avail Cap(c_a), veh/h	564	0	0	548	0	515	89	2653	1187	89	2719	1216
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.8	0.0	0.0	37.1	0.0	0.0	39.3	4.8	0.0	38.5	2.8	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.5	0.0	0.0	9.1	1.2	0.0	8.8	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	1.4	0.0	0.0	0.3	9.1	0.0	1.1	3.0	0.0
LnGrp Delay(d),s/veh	36.0	0.0	0.0	37.6	0.0	0.0	48.4	5.9	0.0	47.3	3.2	0.0
LnGrp LOS	D			D			D	A		D	A	
Approach Vol, veh/h		14			64			1691			911	
Approach Delay, s/veh		36.0			37.6			6.2			5.2	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.4	65.0		8.6	4.9	66.5		8.6
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	4.6	37.0		26.0	4.0	37.0		26.0
Max Q Clear Time (g_c+I1), s	2.9	20.1		5.4	2.5	8.0		2.6
Green Ext Time (p_c), s	0.0	13.2		0.2	0.0	9.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	6.8
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	21	126	146	1547	871	23
Future Volume (veh/h)	21	126	146	1547	871	23
Number	3	18	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	26	0	155	1646	917	24
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.81	0.81	0.94	0.94	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	42	37	148	2925	2394	1071
Arrive On Green	0.02	0.00	0.08	0.83	0.68	0.68
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	26	0	155	1646	917	24
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	0.9	0.0	5.0	9.0	6.8	0.3
Cycle Q Clear(g_c), s	0.9	0.0	5.0	9.0	6.8	0.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	42	37	148	2925	2394	1071
V/C Ratio(X)	0.63	0.00	1.05	0.56	0.38	0.02
Avail Cap(c_a), veh/h	680	607	148	2925	2394	1071
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.0	0.0	27.5	1.7	4.2	3.2
Incr Delay (d2), s/veh	10.9	0.0	87.5	0.8	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.2	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	6.0	4.4	3.3	0.1
LnGrp Delay(d),s/veh	39.9	0.0	115.1	2.5	4.7	3.2
LnGrp LOS	D		F	A	A	A
Approach Vol, veh/h	26			1801	941	
Approach Delay, s/veh	39.9			12.2	4.7	
Approach LOS	D			B	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		54.6			9.0	45.6		5.4
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0
Max Green Setting (Gmax), s		28.0			5.0	19.0		23.0
Max Q Clear Time (g_c+I1), s		11.0			7.0	8.8		2.9
Green Ext Time (p_c), s		13.0			0.0	5.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	9.9
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	8	117	32	7	8	131	1640	56	9	975	33
Future Volume (veh/h)	53	8	117	32	7	8	131	1640	56	9	975	33
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1863	1520	1520	1520
Adj Flow Rate, veh/h	60	9	0	40	9	10	136	1708	58	9	1016	34
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.89	0.89	0.89	0.81	0.81	0.81	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	13	99	143	20	18	169	2794	1250	13	2031	909
Arrive On Green	0.06	0.06	0.00	0.06	0.06	0.06	0.10	0.79	0.79	0.01	0.70	0.70
Sat Flow, veh/h	1402	210	1583	1080	319	285	1774	3539	1583	1447	2887	1292
Grp Volume(v), veh/h	69	0	0	59	0	0	136	1708	58	9	1016	34
Grp Sat Flow(s),veh/h/ln	1613	0	1583	1684	0	0	1774	1770	1583	1447	1444	1292
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	6.0	15.7	0.6	0.5	12.9	0.6
Cycle Q Clear(g_c), s	3.1	0.0	0.0	2.5	0.0	0.0	6.0	15.7	0.6	0.5	12.9	0.6
Prop In Lane	0.87		1.00	0.68		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	185	0	99	181	0	0	169	2794	1250	13	2031	909
V/C Ratio(X)	0.37	0.00	0.00	0.33	0.00	0.00	0.80	0.61	0.05	0.69	0.50	0.04
Avail Cap(c_a), veh/h	544	0	495	552	0	0	188	2794	1250	81	2031	909
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	0.0	0.0	36.3	0.0	0.0	35.5	3.4	1.8	39.5	5.4	3.6
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.4	0.0	0.0	17.8	1.0	0.1	20.9	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	1.3	0.0	0.0	3.8	7.7	0.3	0.3	5.3	0.2
LnGrp Delay(d),s/veh	37.0	0.0	0.0	36.7	0.0	0.0	53.2	4.4	1.9	60.4	6.3	3.7
LnGrp LOS	D			D			D	A	A	E	A	A
Approach Vol, veh/h		69			59			1902			1059	
Approach Delay, s/veh		37.0			36.7			7.8			6.7	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.2	67.3		8.5	11.1	60.4		8.5
Change Period (Y+Rc), s	3.5	4.1		3.5	3.5	4.1		3.5
Max Green Setting (Gmax), s	4.5	39.4		25.0	8.5	35.4		25.0
Max Q Clear Time (g_c+I1), s	2.5	17.7		4.5	8.0	14.9		5.1
Green Ext Time (p_c), s	0.0	16.6		0.2	0.0	9.8		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	405	85	52	250	95	79	99	1292	203	109	876	253
Future Volume (veh/h)	405	85	52	250	95	79	99	1292	203	109	876	253
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.92	1.00		0.92
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1471	1471	1471
Adj Flow Rate, veh/h	445	93	57	283	334	130	108	1404	221	116	932	269
Adj No. of Lanes	2	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.61	0.61	0.61	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	522	164	100	345	362	307	132	1501	635	112	1239	508
Arrive On Green	0.15	0.15	0.15	0.19	0.19	0.19	0.07	0.44	0.44	0.08	0.44	0.44
Sat Flow, veh/h	3442	1081	662	1774	1863	1578	1774	3427	1450	1401	2794	1146
Grp Volume(v), veh/h	445	0	150	283	334	130	108	1404	221	116	932	269
Grp Sat Flow(s),veh/h/ln	1721	0	1743	1774	1863	1578	1774	1714	1450	1401	1397	1146
Q Serve(g_s), s	15.7	0.0	10.0	19.1	22.0	9.0	7.5	48.7	12.6	10.0	34.8	21.3
Cycle Q Clear(g_c), s	15.7	0.0	10.0	19.1	22.0	9.0	7.5	48.7	12.6	10.0	34.8	21.3
Prop In Lane	1.00		0.38	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	522	0	264	345	362	307	132	1501	635	112	1239	508
V/C Ratio(X)	0.85	0.00	0.57	0.82	0.92	0.42	0.82	0.94	0.35	1.04	0.75	0.53
Avail Cap(c_a), veh/h	688	0	349	355	373	316	156	1501	635	112	1239	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	0.0	49.2	48.3	49.4	44.2	57.0	33.4	23.3	57.5	29.0	25.3
Incr Delay (d2), s/veh	6.4	0.0	0.7	12.9	27.0	0.3	21.2	12.2	1.5	94.8	4.2	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.0	4.8	10.6	14.0	4.0	4.5	25.6	5.3	6.8	14.1	7.3
LnGrp Delay(d),s/veh	58.0	0.0	49.9	61.2	76.4	44.6	78.2	45.7	24.8	152.9	33.3	29.2
LnGrp LOS	E		D	E	E	D	E	D	C	F	C	C
Approach Vol, veh/h		595			747			1733			1317	
Approach Delay, s/veh		56.0			65.1			45.0			43.0	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.0	59.7		28.3	13.3	60.5		23.0
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	10.0	48.0		25.0	11.0	47.0		25.0
Max Q Clear Time (g_c+I1), s	12.0	50.7		24.0	9.5	36.8		17.7
Green Ext Time (p_c), s	0.0	0.0		0.3	0.0	6.4		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	49.3
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	456	278	0	0	0	247	572	424	0	570	570
Future Volume (veh/h)	229	456	278	0	0	0	247	572	424	0	570	570
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				1863	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	260	518	316				271	629	466	0	613	0
Adj No. of Lanes	1	2	0				1	2	1	0	2	1
Peak Hour Factor	0.88	0.88	0.88				0.91	0.91	0.91	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				2	2	2	0	2	2
Cap, veh/h	524	625	380				304	2014	901	0	1205	539
Arrive On Green	0.30	0.30	0.30				0.17	0.57	0.57	0.00	0.34	0.00
Sat Flow, veh/h	1774	2117	1288				1774	3539	1583	0	3632	1583
Grp Volume(v), veh/h	260	433	401				271	629	466	0	613	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1635				1774	1770	1583	0	1770	1583
Q Serve(g_s), s	8.5	16.0	16.0				10.5	6.5	12.6	0.0	9.7	0.0
Cycle Q Clear(g_c), s	8.5	16.0	16.0				10.5	6.5	12.6	0.0	9.7	0.0
Prop In Lane	1.00		0.79				1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	524	522	483				304	2014	901	0	1205	539
V/C Ratio(X)	0.50	0.83	0.83				0.89	0.31	0.52	0.00	0.51	0.00
Avail Cap(c_a), veh/h	646	645	596				304	2014	901	0	1205	539
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.61	0.61	0.61	0.00	1.00	0.00
Uniform Delay (d), s/veh	20.4	23.0	23.0				28.4	7.9	9.2	0.0	18.4	0.0
Incr Delay (d2), s/veh	0.3	6.1	6.7				17.4	0.2	1.3	0.0	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	8.7	8.1				6.6	3.2	5.8	0.0	4.9	0.0
LnGrp Delay(d),s/veh	20.6	29.1	29.7				45.8	8.2	10.5	0.0	19.9	0.0
LnGrp LOS	C	C	C				D	A	B		B	
Approach Vol, veh/h		1094						1366			613	
Approach Delay, s/veh		27.3						16.4			19.9	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.8		25.2	16.0	28.8		
Change Period (Y+Rc), s		5.0		4.5	4.0	5.0		
Max Green Setting (Gmax), s		35.0		25.5	12.0	19.0		
Max Q Clear Time (g_c+I1), s		14.6		18.0	12.5	11.7		
Green Ext Time (p_c), s		8.5		2.6	0.0	2.9		

Intersection Summary	
HCM 2010 Ctrl Delay	21.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	41	210	16	0	148	0	1036	15	123	723	0
Future Volume (veh/h)	53	41	210	16	0	148	0	1036	15	123	723	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	0	1863	0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	56	43	221	19	0	178	0	1151	17	137	803	0
Adj No. of Lanes	0	1	1	1	0	1	0	3	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.83	0.83	0.83	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	214	164	331	0	0	0	0	1842	27	175	2007	0
Arrive On Green	0.21	0.21	0.21	0.00	0.00	0.00	0.00	0.36	0.36	0.10	0.57	0.00
Sat Flow, veh/h	1025	787	1583		0		0	5331	76	1774	3632	0
Grp Volume(v), veh/h	99	0	221		0.0		0	756	412	137	803	0
Grp Sat Flow(s),veh/h/ln	1812	0	1583				0	1695	1849	1774	1770	0
Q Serve(g_s), s	1.6	0.0	4.6				0.0	6.6	6.6	2.7	4.5	0.0
Cycle Q Clear(g_c), s	1.6	0.0	4.6				0.0	6.6	6.6	2.7	4.5	0.0
Prop In Lane	0.57		1.00				0.00		0.04	1.00		0.00
Lane Grp Cap(c), veh/h	379	0	331				0	1210	660	175	2007	0
V/C Ratio(X)	0.26	0.00	0.67				0.00	0.62	0.62	0.78	0.40	0.00
Avail Cap(c_a), veh/h	811	0	708				0	1517	828	298	2574	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	11.8	0.0	13.0				0.0	9.5	9.5	15.7	4.3	0.0
Incr Delay (d2), s/veh	0.4	0.0	2.3				0.0	0.5	1.0	7.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	2.2				0.0	3.1	3.5	1.7	2.2	0.0
LnGrp Delay(d),s/veh	12.2	0.0	15.3				0.0	10.1	10.5	23.2	4.5	0.0
LnGrp LOS	B		B					B	B	C	A	
Approach Vol, veh/h		320						1168			940	
Approach Delay, s/veh		14.4						10.2			7.2	
Approach LOS		B						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		11.5		24.3			7.5	16.8
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0
Max Green Setting (Gmax), s		16.0		26.0			6.0	16.0
Max Q Clear Time (g_c+I1), s		6.6		6.5			4.7	8.6
Green Ext Time (p_c), s		0.9		5.4			0.0	4.2

Intersection Summary	
HCM 2010 Ctrl Delay	9.6
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	98	98	98	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1	0	0	1	0	0	2	2	1	2	2	1
Stage 1	-	-	-	-	-	-	1	1	-	1	1	-
Stage 2	-	-	-	-	-	-	1	1	-	1	1	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1622	-	-	1622	-	-	1020	894	1084	1020	894	1084
Stage 1	-	-	-	-	-	-	1022	895	-	1022	895	-
Stage 2	-	-	-	-	-	-	1022	895	-	1022	895	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1622	-	-	1622	-	-	1020	894	1084	1020	894	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	1020	894	-	1020	894	-
Stage 1	-	-	-	-	-	-	1022	895	-	1022	895	-
Stage 2	-	-	-	-	-	-	1022	895	-	1022	895	-

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

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	1622	-	-	1622	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	-	0	-	-	0	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	335	1242	133	268	8	220	16	103	4	31	23
Future Volume (veh/h)	31	335	1242	133	268	8	220	16	103	4	31	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	35	376	0	153	308	9	289	0	0	5	41	31
Adj No. of Lanes	1	1	1	1	1	0	2	0	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.80	0.80	0.80	0.75	0.75	0.75
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	490	417	195	614	18	506	0	226	11	89	68
Arrive On Green	0.03	0.26	0.00	0.11	0.34	0.34	0.14	0.00	0.00	0.10	0.10	0.10
Sat Flow, veh/h	1774	1863	1583	1774	1801	53	3548	0	1583	113	923	698
Grp Volume(v), veh/h	35	376	0	153	0	317	289	0	0	77	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1853	1774	0	1583	1734	0	0
Q Serve(g_s), s	0.8	7.7	0.0	3.5	0.0	5.6	3.1	0.0	0.0	1.7	0.0	0.0
Cycle Q Clear(g_c), s	0.8	7.7	0.0	3.5	0.0	5.6	3.1	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.06		0.40
Lane Grp Cap(c), veh/h	57	490	417	195	0	632	506	0	226	168	0	0
V/C Ratio(X)	0.62	0.77	0.00	0.78	0.00	0.50	0.57	0.00	0.00	0.46	0.00	0.00
Avail Cap(c_a), veh/h	172	722	614	258	0	808	1375	0	614	672	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.7	14.0	0.0	17.9	0.0	10.8	16.5	0.0	0.0	17.6	0.0	0.0
Incr Delay (d2), s/veh	10.4	2.9	0.0	10.9	0.0	0.6	1.0	0.0	0.0	1.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.3	0.0	2.3	0.0	2.9	1.6	0.0	0.0	0.9	0.0	0.0
LnGrp Delay(d),s/veh	30.1	17.0	0.0	28.8	0.0	11.4	17.5	0.0	0.0	19.6	0.0	0.0
LnGrp LOS	C	B		C		B	B			B		
Approach Vol, veh/h		411			470			289			77	
Approach Delay, s/veh		18.1			17.1			17.5			19.6	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		9.9	8.5	14.9		8.0	5.3	18.1
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		16.0	6.0	16.0		16.0	4.0	18.0
Max Q Clear Time (g_c+I1), s		5.1	5.5	9.7		3.7	2.8	7.6
Green Ext Time (p_c), s		0.7	0.0	1.2		0.2	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	17.7
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	748	284	210	276	11	553	10	866	23	10	7
Future Volume (veh/h)	10	748	284	210	276	11	553	10	866	23	10	7
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	11	822	0	223	294	12	660	0	1019	25	11	8
Adj No. of Lanes	1	2	1	1	2	0	2	0	2	0	1	0
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.85	0.85	0.85	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	865	387	256	1311	53	907	0	1267	177	78	57
Arrive On Green	0.01	0.24	0.00	0.14	0.38	0.38	0.26	0.00	0.26	0.18	0.18	0.18
Sat Flow, veh/h	1774	3539	1583	1774	3466	141	3548	0	3167	998	439	319
Grp Volume(v), veh/h	11	822	0	223	150	156	660	0	1019	44	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1838	1774	0	1583	1756	0	0
Q Serve(g_s), s	0.6	20.6	0.0	11.1	5.2	5.2	15.3	0.0	23.0	1.9	0.0	0.0
Cycle Q Clear(g_c), s	0.6	20.6	0.0	11.1	5.2	5.2	15.3	0.0	23.0	1.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	0.57		0.18
Lane Grp Cap(c), veh/h	19	865	387	256	669	695	907	0	1267	312	0	0
V/C Ratio(X)	0.58	0.95	0.00	0.87	0.22	0.22	0.73	0.00	0.80	0.14	0.00	0.00
Avail Cap(c_a), veh/h	79	865	387	256	669	695	907	0	1267	312	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	44.3	33.5	0.0	37.7	19.0	19.0	30.6	0.0	23.9	31.2	0.0	0.0
Incr Delay (d2), s/veh	25.0	19.5	0.0	26.0	0.2	0.2	5.1	0.0	5.5	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	12.4	0.0	7.2	2.6	2.7	8.2	0.0	12.1	1.0	0.0	0.0
LnGrp Delay(d),s/veh	69.4	53.0	0.0	63.6	19.2	19.2	35.7	0.0	29.4	32.1	0.0	0.0
LnGrp LOS	E	D		E	B	B	D		C	C		
Approach Vol, veh/h		833			529			1679			44	
Approach Delay, s/veh		53.2			37.9			31.9			32.1	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		27.0	17.0	26.0		20.0	5.0	38.0
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		23.0	13.0	22.0		16.0	4.0	31.0
Max Q Clear Time (g_c+I1), s		25.0	13.1	22.6		3.9	2.6	7.2
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	38.7
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	11216	11249	11220	11281	11274	11249
Vehs Exited	11098	11126	11063	11172	11208	11135
Starting Vehs	422	398	414	410	417	408
Ending Vehs	540	521	571	519	483	521
Travel Distance (mi)	6611	6742	6691	6695	6797	6707
Travel Time (hr)	1895.1	2015.5	1940.7	1976.2	1912.2	1947.9
Total Delay (hr)	1677.6	1794.0	1720.1	1756.0	1689.2	1727.4
Total Stops	13669	14243	14342	14273	13605	14029
Fuel Used (gal)	623.5	655.1	636.1	643.8	631.9	638.1

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	11216	11249	11220	11281	11274	11249
Vehs Exited	11098	11126	11063	11172	11208	11135
Starting Vehs	422	398	414	410	417	408
Ending Vehs	540	521	571	519	483	521
Travel Distance (mi)	6611	6742	6691	6695	6797	6707
Travel Time (hr)	1895.1	2015.5	1940.7	1976.2	1912.2	1947.9
Total Delay (hr)	1677.6	1794.0	1720.1	1756.0	1689.2	1727.4
Total Stops	13669	14243	14342	14273	13605	14029
Fuel Used (gal)	623.5	655.1	636.1	643.8	631.9	638.1

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Old Tunnel Road	7	73.2	130.0	0.1	5
SR 24 WB On Ramp	6	13.2	19.0	0.1	11
	17	8.9	14.2	0.1	16
	16	1.0	9.3	0.1	27
	15	1.3	9.9	0.1	37
Acalanes Avenue	14	1.9	10.1	0.1	22
	11	2.9	8.5	0.1	23
Stanley Boulevard	5	34.7	41.3	0.1	6
School Dwy.	20	4.0	10.3	0.1	21
School Dwy.	19	2.9	15.3	0.1	32
	18	0.9	6.4	0.1	34
	39	0.5	10.1	0.1	33
Quandt Road	4	3.0	13.8	0.1	31
	37	1.2	7.7	0.1	34
Reliez Valle Road	3	1.1	7.5	0.1	34
	58	0.7	8.7	0.1	37
Greenvalley Drive	2	5.4	26.0	0.2	33
	22	2.1	17.7	0.2	35
Rancho View Drive	1	2.9	22.5	0.2	35
Total		161.8	388.0	1.9	20

Arterial Level of Service: SB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Rancho View Drive	1	2.8	19.4	0.2	30
	22	1.5	24.2	0.2	33
Greenvalley Drive	2	2.9	20.8	0.2	30
	58	1.8	26.0	0.2	33
Reliez Valle Road	3	4.6	14.0	0.1	23
	37	1.6	8.9	0.1	29
Springhill Road	4	6.0	13.5	0.1	20
	39	1.9	14.3	0.1	30
	18	1.9	11.4	0.1	29
School Dwy.	19	5.7	12.6	0.1	18
School Dwy.	20	58.0	71.7	0.1	7
Deer Hill Road	5	47.7	53.4	0.1	4
	11	3.3	10.7	0.1	23
Acalanes Avenue	14	2.7	8.2	0.1	24
	15	5.3	11.9	0.1	19
	16	4.2	12.3	0.1	30
	17	4.1	12.7	0.1	20
Mt. Diablo Boulevard	6	19.6	25.9	0.1	9
SR 24 EB Off Ramp	7	14.4	20.6	0.1	10
Total		189.9	392.1	2.0	18

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	22	0	0	0	21	2180	0	0	832	20
Future Volume (veh/h)	7	0	22	0	0	0	21	2180	0	0	832	20
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	0	1863	1900
Adj Flow Rate, veh/h	9	0	28	0	0	0	21	2224	0	0	876	21
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.79	0.79	0.79	0.92	0.92	0.92	0.98	0.98	0.98	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	70	0	33	0	53	0	768	3013	0	0	1243	30
Arrive On Green	0.03	0.00	0.03	0.00	0.00	0.00	0.43	0.85	0.00	0.00	0.35	0.35
Sat Flow, veh/h	374	0	1162	0	1863	0	1774	3632	0	0	3626	85
Grp Volume(v), veh/h	37	0	0	0	0	0	21	2224	0	0	439	458
Grp Sat Flow(s),veh/h/ln	1536	0	0	0	1863	0	1774	1770	0	0	1770	1848
Q Serve(g_s), s	1.8	0.0	0.0	0.0	0.0	0.0	0.5	18.9	0.0	0.0	16.0	16.0
Cycle Q Clear(g_c), s	1.8	0.0	0.0	0.0	0.0	0.0	0.5	18.9	0.0	0.0	16.0	16.0
Prop In Lane	0.24		0.76	0.00		0.00	1.00		0.00	0.00		0.05
Lane Grp Cap(c), veh/h	104	0	0	0	53	0	768	3013	0	0	623	650
V/C Ratio(X)	0.36	0.00	0.00	0.00	0.00	0.00	0.03	0.74	0.00	0.00	0.70	0.70
Avail Cap(c_a), veh/h	387	0	0	0	397	0	768	3013	0	0	991	1035
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	0.0	0.0	0.0	0.0	0.0	12.2	2.2	0.0	0.0	20.9	20.9
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	6.6	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.0	0.0	0.0	0.3	9.3	0.0	0.0	8.9	9.3
LnGrp Delay(d),s/veh	37.8	0.0	0.0	0.0	0.0	0.0	12.2	3.9	0.0	0.0	27.5	27.2
LnGrp LOS	D						B	A			C	C
Approach Vol, veh/h		37			0			2245			897	
Approach Delay, s/veh		37.8			0.0			4.0			27.4	
Approach LOS		D						A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		68.9		6.1	37.5	31.4		6.1
Change Period (Y+Rc), s		5.0		4.0	5.0	* 5		4.0
Max Green Setting (Gmax), s		50.0		16.0	4.0	* 42		16.0
Max Q Clear Time (g_c+I1), s		20.9		0.0	2.5	18.0		3.8
Green Ext Time (p_c), s		25.6		0.0	0.0	8.4		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	3	14	0	18	3	2130	24	13	811	5
Future Volume (veh/h)	8	0	3	14	0	18	3	2130	24	13	811	5
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	13	0	5	16	0	0	3	2173	0	13	836	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.63	0.63	0.63	0.88	0.88	0.88	0.98	0.98	0.98	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	0	11	110	0	39	6	2950	1320	22	2981	1334
Arrive On Green	0.02	0.00	0.02	0.02	0.00	0.00	0.00	0.83	0.00	0.01	0.84	0.00
Sat Flow, veh/h	1139	0	438	1558	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	18	0	0	16	0	0	3	2173	0	13	836	0
Grp Sat Flow(s),veh/h/ln	1577	0	0	1558	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	0.0	0.2	26.5	0.0	0.7	4.9	0.0
Cycle Q Clear(g_c), s	1.0	0.0	0.0	0.9	0.0	0.0	0.2	26.5	0.0	0.7	4.9	0.0
Prop In Lane	0.72		0.28	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	101	0	0	110	0	39	6	2950	1320	22	2981	1334
V/C Ratio(X)	0.18	0.00	0.00	0.15	0.00	0.00	0.53	0.74	0.00	0.60	0.28	0.00
Avail Cap(c_a), veh/h	442	0	0	441	0	412	71	2950	1320	71	2981	1334
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.1	0.0	0.0	48.0	0.0	0.0	49.8	3.6	0.0	49.2	1.6	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.2	0.0	0.0	25.5	1.7	0.0	9.7	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.4	0.0	0.0	0.1	13.1	0.0	0.4	2.4	0.0
LnGrp Delay(d),s/veh	48.7	0.0	0.0	48.2	0.0	0.0	75.3	5.3	0.0	58.9	1.9	0.0
LnGrp LOS	D			D			E	A		E	A	
Approach Vol, veh/h		18			16			2176			849	
Approach Delay, s/veh		48.7			48.2			5.4			2.7	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	88.3		6.4	4.3	89.2		6.4
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	4.6	57.0		26.0	4.0	57.0		26.0
Max Q Clear Time (g_c+I1), s	2.7	28.5		2.9	2.2	6.9		3.0
Green Ext Time (p_c), s	0.0	24.7		0.0	0.0	10.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	5.1
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	118	209	2141	825	30
Future Volume (veh/h)	23	118	209	2141	825	30
Number	3	18	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	26	0	220	2254	917	33
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.88	0.88	0.95	0.95	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	38	34	257	3110	2441	1092
Arrive On Green	0.02	0.00	0.14	0.88	0.69	0.69
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	26	0	220	2254	917	33
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	1.3	0.0	10.9	19.1	9.8	0.6
Cycle Q Clear(g_c), s	1.3	0.0	10.9	19.1	9.8	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	38	34	257	3110	2441	1092
V/C Ratio(X)	0.69	0.00	0.86	0.72	0.38	0.03
Avail Cap(c_a), veh/h	453	405	394	3110	2441	1092
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.50	0.50	1.00	1.00
Uniform Delay (d), s/veh	43.7	0.0	37.6	1.8	5.8	4.4
Incr Delay (d2), s/veh	15.3	0.0	3.7	0.8	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	5.6	9.1	4.9	0.3
LnGrp Delay(d),s/veh	59.1	0.0	41.3	2.6	6.3	4.5
LnGrp LOS	E		D	A	A	A
Approach Vol, veh/h	26			2474	950	
Approach Delay, s/veh	59.1			6.0	6.2	
Approach LOS	E			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		84.1			17.0	67.1		5.9
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0
Max Green Setting (Gmax), s		58.0			20.0	34.0		23.0
Max Q Clear Time (g_c+I1), s		21.1			12.9	11.8		3.3
Green Ext Time (p_c), s		31.7			0.2	9.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	6.5
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	2	100	25	0	7	141	2317	38	16	972	28
Future Volume (veh/h)	22	2	100	25	0	7	141	2317	38	16	972	28
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1863	1520	1520	1520
Adj Flow Rate, veh/h	27	2	0	32	0	9	147	2414	40	17	1034	30
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.81	0.81	0.81	0.78	0.78	0.78	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	5	59	95	0	13	172	3056	1367	20	2255	1009
Arrive On Green	0.04	0.04	0.00	0.04	0.00	0.04	0.10	0.86	0.86	0.01	0.78	0.78
Sat Flow, veh/h	1534	123	1583	1244	0	350	1774	3539	1583	1447	2887	1292
Grp Volume(v), veh/h	29	0	0	41	0	0	147	2414	40	17	1034	30
Grp Sat Flow(s),veh/h/ln	1657	0	1583	1594	0	0	1774	1770	1583	1447	1444	1292
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	0.0	10.6	38.1	0.5	1.5	15.9	0.7
Cycle Q Clear(g_c), s	2.1	0.0	0.0	3.1	0.0	0.0	10.6	38.1	0.5	1.5	15.9	0.7
Prop In Lane	0.93		1.00	0.78		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	115	0	59	108	0	0	172	3056	1367	20	2255	1009
V/C Ratio(X)	0.25	0.00	0.00	0.38	0.00	0.00	0.86	0.79	0.03	0.83	0.46	0.03
Avail Cap(c_a), veh/h	336	0	304	333	0	0	252	3056	1367	50	2255	1009
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	61.3	0.0	0.0	61.7	0.0	0.0	57.8	3.8	1.2	63.9	4.9	3.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.8	0.0	0.0	12.2	2.2	0.0	23.8	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	1.5	0.0	0.0	5.8	18.7	0.2	0.7	6.4	0.3
LnGrp Delay(d),s/veh	61.7	0.0	0.0	62.5	0.0	0.0	70.0	6.0	1.3	87.8	5.5	3.2
LnGrp LOS	E			E			E	A	A	F	A	A
Approach Vol, veh/h		29			41			2601			1081	
Approach Delay, s/veh		61.7			62.5			9.5			6.7	
Approach LOS		E			E			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	116.4		8.3	16.1	105.6		8.3
Change Period (Y+Rc), s	3.5	4.1		3.5	3.5	4.1		3.5
Max Green Setting (Gmax), s	4.5	89.4		25.0	18.5	75.4		25.0
Max Q Clear Time (g_c+I1), s	3.5	40.1		5.1	12.6	17.9		4.1
Green Ext Time (p_c), s	0.0	43.2		0.1	0.0	14.6		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.7
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	742	102	59	211	77	172	46	1617	210	122	735	208
Future Volume (veh/h)	742	102	59	211	77	172	46	1617	210	122	735	208
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.92	1.00		0.93
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1471	1471	1471
Adj Flow Rate, veh/h	781	107	62	172	203	205	47	1667	216	136	817	231
Adj No. of Lanes	2	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.84	0.84	0.84	0.97	0.97	0.97	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	665	214	124	260	273	231	60	1602	682	106	1423	590
Arrive On Green	0.19	0.19	0.19	0.15	0.15	0.15	0.03	0.47	0.47	0.08	0.51	0.51
Sat Flow, veh/h	3442	1106	641	1774	1863	1577	1774	3427	1458	1401	2794	1159
Grp Volume(v), veh/h	781	0	169	172	203	205	47	1667	216	136	817	231
Grp Sat Flow(s),veh/h/ln	1721	0	1747	1774	1863	1577	1774	1714	1458	1401	1397	1159
Q Serve(g_s), s	28.0	0.0	12.5	13.3	15.1	18.5	3.8	67.8	13.4	11.0	29.4	17.7
Cycle Q Clear(g_c), s	28.0	0.0	12.5	13.3	15.1	18.5	3.8	67.8	13.4	11.0	29.4	17.7
Prop In Lane	1.00		0.37	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	665	0	337	260	273	231	60	1602	682	106	1423	590
V/C Ratio(X)	1.18	0.00	0.50	0.66	0.74	0.89	0.78	1.04	0.32	1.28	0.57	0.39
Avail Cap(c_a), veh/h	665	0	337	306	321	272	110	1602	682	106	1423	590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	0.0	52.3	58.5	59.3	60.7	69.5	38.6	24.1	67.0	24.7	21.8
Incr Delay (d2), s/veh	94.0	0.0	0.4	2.6	5.9	23.2	7.7	33.8	1.2	180.2	1.7	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.0	0.0	6.1	6.7	8.2	9.6	2.0	39.6	5.6	9.6	11.7	6.0
LnGrp Delay(d),s/veh	152.5	0.0	52.7	61.1	65.2	84.0	77.2	72.4	25.4	247.2	26.4	23.8
LnGrp LOS	F		D	E	E	F	E	F	C	F	C	C
Approach Vol, veh/h		950			580			1930			1184	
Approach Delay, s/veh		134.8			70.6			67.2			51.2	
Approach LOS		F			E			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	72.8		25.2	8.9	78.8		32.0
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	11.0	64.0		25.0	9.0	66.0		28.0
Max Q Clear Time (g_c+I1), s	13.0	69.8		20.5	5.8	31.4		30.0
Green Ext Time (p_c), s	0.0	0.0		0.7	0.0	11.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	77.4
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	494	269	0	0	0	238	561	266	0	616	462
Future Volume (veh/h)	226	494	269	0	0	0	238	561	266	0	616	462
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				1863	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	248	543	296				248	584	277	0	655	0
Adj No. of Lanes	1	2	0				1	2	1	0	2	1
Peak Hour Factor	0.91	0.91	0.91				0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				2	2	2	0	2	2
Cap, veh/h	536	669	364				191	1952	873	0	1353	605
Arrive On Green	0.30	0.30	0.30				0.11	0.55	0.55	0.00	0.38	0.00
Sat Flow, veh/h	1774	2215	1205				1774	3539	1583	0	3632	1583
Grp Volume(v), veh/h	248	434	405				248	584	277	0	655	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1650				1774	1770	1583	0	1770	1583
Q Serve(g_s), s	7.4	14.7	14.8				7.0	5.8	6.2	0.0	9.1	0.0
Cycle Q Clear(g_c), s	7.4	14.7	14.8				7.0	5.8	6.2	0.0	9.1	0.0
Prop In Lane	1.00		0.73				1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	536	535	499				191	1952	873	0	1353	605
V/C Ratio(X)	0.46	0.81	0.81				1.30	0.30	0.32	0.00	0.48	0.00
Avail Cap(c_a), veh/h	696	694	647				191	1952	873	0	1353	605
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.75	0.75	0.75	0.00	1.00	0.00
Uniform Delay (d), s/veh	18.4	21.0	21.0				29.0	7.8	7.9	0.0	15.2	0.0
Incr Delay (d2), s/veh	0.2	4.3	4.6				159.9	0.3	0.7	0.0	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	7.7	7.3				11.9	2.8	2.9	0.0	4.7	0.0
LnGrp Delay(d),s/veh	18.6	25.2	25.6				188.9	8.1	8.6	0.0	16.5	0.0
LnGrp LOS	B	C	C				F	A	A		B	
Approach Vol, veh/h		1087						1109			655	
Approach Delay, s/veh		23.9						48.7			16.5	
Approach LOS		C						D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		40.9		24.1	11.0	29.9		
Change Period (Y+Rc), s		5.0		4.5	4.0	5.0		
Max Green Setting (Gmax), s		30.0		25.5	7.0	19.0		
Max Q Clear Time (g_c+I1), s		8.2		16.8	9.0	11.1		
Green Ext Time (p_c), s		7.0		2.9	0.0	3.3		

Intersection Summary	
HCM 2010 Ctrl Delay	31.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	56	304	30	0	184	0	849	17	122	763	0
Future Volume (veh/h)	62	56	304	30	0	184	0	849	17	122	763	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	0	1863	0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	68	62	334	35	0	214	0	866	17	134	838	0
Adj No. of Lanes	0	1	1	1	0	1	0	3	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.86	0.86	0.86	0.98	0.98	0.98	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	265	242	442	0	0	0	0	1522	30	171	1778	0
Arrive On Green	0.28	0.28	0.28	0.00	0.00	0.00	0.00	0.30	0.30	0.10	0.50	0.00
Sat Flow, veh/h	950	866	1583		0		0	5302	101	1774	3632	0
Grp Volume(v), veh/h	130	0	334		0.0		0	572	311	134	838	0
Grp Sat Flow(s),veh/h/ln	1815	0	1583				0	1695	1845	1774	1770	0
Q Serve(g_s), s	2.0	0.0	7.0				0.0	5.2	5.2	2.7	5.6	0.0
Cycle Q Clear(g_c), s	2.0	0.0	7.0				0.0	5.2	5.2	2.7	5.6	0.0
Prop In Lane	0.52		1.00				0.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	506	0	442				0	1005	547	171	1778	0
V/C Ratio(X)	0.26	0.00	0.76				0.00	0.57	0.57	0.78	0.47	0.00
Avail Cap(c_a), veh/h	794	0	693				0	1483	807	291	2517	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.2	0.0	12.0				0.0	10.9	10.9	16.1	5.9	0.0
Incr Delay (d2), s/veh	0.3	0.0	2.7				0.0	0.5	0.9	7.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	3.4				0.0	2.5	2.7	1.7	2.7	0.0
LnGrp Delay(d),s/veh	10.5	0.0	14.7				0.0	11.4	11.8	23.8	6.1	0.0
LnGrp LOS	B		B					B	B	C	A	
Approach Vol, veh/h		464						883			972	
Approach Delay, s/veh		13.5						11.5			8.6	
Approach LOS		B						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		14.2		22.4			7.5	14.8
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0
Max Green Setting (Gmax), s		16.0		26.0			6.0	16.0
Max Q Clear Time (g_c+I1), s		9.0		7.6			4.7	7.2
Green Ext Time (p_c), s		1.2		5.5			0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	67.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	703	56	119	335	98	65	9	123	70	14	22
Future Vol, veh/h	53	703	56	119	335	98	65	9	123	70	14	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	98	98	98	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	781	62	127	356	104	66	9	126	82	16	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	460	0	0	843	0	0	1613	1644	812	1660	1623	408
Stage 1	-	-	-	-	-	-	930	930	-	662	662	-
Stage 2	-	-	-	-	-	-	683	714	-	998	961	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1101	-	-	793	-	-	84	100	379	~ 78	103	643
Stage 1	-	-	-	-	-	-	321	346	-	451	459	-
Stage 2	-	-	-	-	-	-	439	435	-	294	335	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1101	-	-	793	-	-	~ 58	80	379	~ 40	82	643
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 58	80	-	~ 40	82	-
Stage 1	-	-	-	-	-	-	304	327	-	427	386	-
Stage 2	-	-	-	-	-	-	339	365	-	181	317	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	2.2	130.8	$ 761.3
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	60	379	1101	-	-	793	-	-	54
HCM Lane V/C Ratio	1.259	0.331	0.053	-	-	0.16	-	-	2.309
HCM Control Delay (s)	$ 316.5	19.1	8.5	-	-	10.4	-	-	$ 761.3
HCM Lane LOS	F	C	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	6.4	1.4	0.2	-	-	0.6	-	-	12.6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	669	1549	100	280	2	198	17	139	6	29	11
Future Volume (veh/h)	25	669	1549	100	280	2	198	17	139	6	29	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	27	727	0	109	304	2	228	0	0	7	32	12
Adj No. of Lanes	1	1	1	1	1	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	858	729	139	951	6	378	0	168	17	79	30
Arrive On Green	0.02	0.46	0.00	0.08	0.51	0.51	0.11	0.00	0.00	0.07	0.07	0.07
Sat Flow, veh/h	1774	1863	1583	1774	1848	12	3548	0	1583	244	1115	418
Grp Volume(v), veh/h	27	727	0	109	0	306	228	0	0	51	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1861	1774	0	1583	1777	0	0
Q Serve(g_s), s	0.9	19.5	0.0	3.4	0.0	5.4	3.5	0.0	0.0	1.5	0.0	0.0
Cycle Q Clear(g_c), s	0.9	19.5	0.0	3.4	0.0	5.4	3.5	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.14		0.24
Lane Grp Cap(c), veh/h	43	858	729	139	0	958	378	0	168	126	0	0
V/C Ratio(X)	0.62	0.85	0.00	0.78	0.00	0.32	0.60	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	157	1188	1010	189	0	1220	1006	0	449	504	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.3	13.5	0.0	25.5	0.0	8.0	24.1	0.0	0.0	25.1	0.0	0.0
Incr Delay (d2), s/veh	13.7	4.3	0.0	13.7	0.0	0.2	1.6	0.0	0.0	2.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	10.9	0.0	2.2	0.0	2.8	1.8	0.0	0.0	0.8	0.0	0.0
LnGrp Delay(d),s/veh	40.9	17.8	0.0	39.2	0.0	8.1	25.6	0.0	0.0	27.2	0.0	0.0
LnGrp LOS	D	B		D		A	C			C		
Approach Vol, veh/h		754			415			228			51	
Approach Delay, s/veh		18.6			16.3			25.6			27.2	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.0	8.4	30.0		8.0	5.4	33.0
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		16.0	6.0	36.0		16.0	5.0	37.0
Max Q Clear Time (g_c+I1), s		5.5	5.4	21.5		3.5	2.9	7.4
Green Ext Time (p_c), s		0.5	0.0	4.5		0.1	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1325	296	210	268	4	609	7	936	23	1	11
Future Volume (veh/h)	20	1325	296	210	268	4	609	7	936	23	1	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	22	1440	0	228	291	4	668	0	1017	25	1	12
Adj No. of Lanes	1	2	1	1	2	0	2	0	2	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	1351	605	226	1756	24	710	0	1036	164	7	79
Arrive On Green	0.02	0.38	0.00	0.13	0.49	0.49	0.20	0.00	0.20	0.15	0.15	0.15
Sat Flow, veh/h	1774	3539	1583	1774	3575	49	3548	0	3167	1126	45	540
Grp Volume(v), veh/h	22	1440	0	228	144	151	668	0	1017	38	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1854	1774	0	1583	1711	0	0
Q Serve(g_s), s	1.4	42.0	0.0	14.0	5.0	5.0	20.4	0.0	22.0	2.1	0.0	0.0
Cycle Q Clear(g_c), s	1.4	42.0	0.0	14.0	5.0	5.0	20.4	0.0	22.0	2.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.66		0.32
Lane Grp Cap(c), veh/h	32	1351	605	226	869	911	710	0	1036	249	0	0
V/C Ratio(X)	0.70	1.07	0.00	1.01	0.17	0.17	0.94	0.00	0.98	0.15	0.00	0.00
Avail Cap(c_a), veh/h	81	1351	605	226	869	911	710	0	1036	249	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.7	34.0	0.0	48.0	15.5	15.5	43.4	0.0	36.7	41.1	0.0	0.0
Incr Delay (d2), s/veh	24.1	44.0	0.0	62.4	0.1	0.1	22.1	0.0	23.8	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	28.7	0.0	10.8	2.4	2.5	12.2	0.0	18.7	1.1	0.0	0.0
LnGrp Delay(d),s/veh	77.8	78.0	0.0	110.5	15.6	15.6	65.5	0.0	60.5	42.4	0.0	0.0
LnGrp LOS	E	F		F	B	B	E		E	D		
Approach Vol, veh/h		1462			523			1685			38	
Approach Delay, s/veh		78.0			57.0			62.5			42.4	
Approach LOS		E			E			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		26.0	18.0	46.0		20.0	6.0	58.0
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		22.0	14.0	42.0		16.0	5.0	51.0
Max Q Clear Time (g_c+I1), s		24.0	16.0	44.0		4.1	3.4	7.0
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	67.6
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	9445	9693	9774	9623	9682	9641
Vehs Exited	9183	9422	9553	9383	9480	9405
Starting Vehs	493	470	525	490	487	483
Ending Vehs	755	741	746	730	689	730
Travel Distance (mi)	8054	8180	8424	8198	8170	8205
Travel Time (hr)	2118.7	1874.9	1940.2	2093.4	1926.4	1990.7
Total Delay (hr)	1861.3	1614.0	1671.3	1830.9	1665.2	1728.5
Total Stops	14730	14580	14690	14902	15060	14796
Fuel Used (gal)	699.6	647.4	668.4	695.2	659.4	674.0

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	9445	9693	9774	9623	9682	9641
Vehs Exited	9183	9422	9553	9383	9480	9405
Starting Vehs	493	470	525	490	487	483
Ending Vehs	755	741	746	730	689	730
Travel Distance (mi)	8054	8180	8424	8198	8170	8205
Travel Time (hr)	2118.7	1874.9	1940.2	2093.4	1926.4	1990.7
Total Delay (hr)	1861.3	1614.0	1671.3	1830.9	1665.2	1728.5
Total Stops	14730	14580	14690	14902	15060	14796
Fuel Used (gal)	699.6	647.4	668.4	695.2	659.4	674.0

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Old Tunnel Road	7	105.0	315.4	0.1	4
SR 24 WB On Ramp	6	34.3	40.1	0.1	5
	17	26.5	37.3	0.1	7
	16	1.1	9.4	0.1	26
	15	1.2	10.0	0.1	37
Acalanes Avenue	14	2.3	10.6	0.1	21
	11	5.6	11.1	0.1	17
Stanley Boulevard	5	31.7	38.0	0.1	6
School Dwy.	20	4.0	10.2	0.1	21
School Dwy.	19	2.1	16.0	0.1	31
	18	0.7	7.0	0.1	31
	39	1.2	10.7	0.1	31
Quandt Road	4	4.0	14.8	0.1	29
Reliez Valle Road	3	3.7	16.6	0.1	31
	58	1.1	9.1	0.1	36
Greenvalley Drive	2	3.6	24.5	0.2	34
	22	1.8	17.4	0.2	36
Rancho View Drive	1	2.9	22.3	0.2	36
Total		232.8	620.5	1.9	17

Arterial Level of Service: SB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Rancho View Drive	1	2.1	18.5	0.2	32
	22	1.3	23.9	0.2	33
Greenvalley Drive	2	1.8	19.2	0.2	33
	58	1.5	25.8	0.2	33
Reliez Valle Road	3	5.7	14.7	0.1	22
Springhill Road	4	6.7	21.2	0.1	24
	39	1.7	14.1	0.1	30
	18	1.0	10.5	0.1	31
School Dwy.	19	0.9	7.1	0.1	31
School Dwy.	20	26.3	40.1	0.1	12
Deer Hill Road	5	29.7	37.9	0.1	6
	11	2.7	10.1	0.1	24
Acalanes Avenue	14	1.7	7.2	0.1	27
	15	4.6	11.3	0.1	20
	16	4.3	12.8	0.1	29
	17	3.6	12.3	0.1	20
Mt. Diablo Boulevard	6	19.4	25.6	0.1	9
SR 24 EB Off Ramp	7	15.8	22.1	0.1	10
Total		130.9	334.3	2.0	21

Appendix D – Level of Service Worksheets: Existing plus Project Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	39	0	0	0	17	614	0	0	1534	10
Future Volume (veh/h)	0	0	39	0	0	0	17	614	0	0	1534	10
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	0	1863	1900
Adj Flow Rate, veh/h	0	0	60	0	0	0	22	777	0	0	1942	13
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.65	0.65	0.65	0.92	0.92	0.92	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	75	0	88	0	369	2995	0	0	2061	14
Arrive On Green	0.00	0.00	0.05	0.00	0.00	0.00	0.21	0.85	0.00	0.00	0.57	0.56
Sat Flow, veh/h	0	0	1583	0	1863	0	1774	3632	0	0	3697	24
Grp Volume(v), veh/h	0	0	60	0	0	0	22	777	0	0	952	1003
Grp Sat Flow(s),veh/h/ln	0	0	1583	0	1863	0	1774	1770	0	0	1770	1858
Q Serve(g_s), s	0.0	0.0	2.8	0.0	0.0	0.0	0.7	3.2	0.0	0.0	37.4	37.6
Cycle Q Clear(g_c), s	0.0	0.0	2.8	0.0	0.0	0.0	0.7	3.2	0.0	0.0	37.4	37.6
Prop In Lane	0.00		1.00	0.00		0.00	1.00		0.00	0.00		0.01
Lane Grp Cap(c), veh/h	0	0	75	0	88	0	369	2995	0	0	1012	1063
V/C Ratio(X)	0.00	0.00	0.81	0.00	0.00	0.00	0.06	0.26	0.00	0.00	0.94	0.94
Avail Cap(c_a), veh/h	0	0	338	0	397	0	369	2995	0	0	1015	1066
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	35.4	0.0	0.0	0.0	23.8	1.1	0.0	0.0	14.9	14.9
Incr Delay (d2), s/veh	0.0	0.0	13.8	0.0	0.0	0.0	0.0	0.2	0.0	0.0	17.2	16.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.5	0.0	0.0	0.0	0.4	1.6	0.0	0.0	22.8	23.9
LnGrp Delay(d),s/veh	0.0	0.0	49.2	0.0	0.0	0.0	23.9	1.3	0.0	0.0	32.1	31.9
LnGrp LOS			D				C	A			C	C
Approach Vol, veh/h		60			0			799			1955	
Approach Delay, s/veh		49.2			0.0			2.0			32.0	
Approach LOS		D						A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		67.5		7.5	20.6	46.9		7.5
Change Period (Y+Rc), s		5.0		4.0	5.0	* 5		4.0
Max Green Setting (Gmax), s		50.0		16.0	4.0	* 42		16.0
Max Q Clear Time (g_c+I1), s		5.2		0.0	2.7	39.6		4.8
Green Ext Time (p_c), s		8.8		0.0	0.0	2.3		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	23.8
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	6	20	0	10	0	689	14	8	1706	1
Future Volume (veh/h)	2	0	6	20	0	10	0	689	14	8	1706	1
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	2	0	7	31	0	0	0	725	0	9	1815	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.65	0.65	0.65	0.95	0.95	0.95	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	1	38	121	0	44	2	2936	1314	16	3125	1398
Arrive On Green	0.03	0.00	0.03	0.03	0.00	0.00	0.00	0.83	0.00	0.01	0.88	0.00
Sat Flow, veh/h	356	32	1356	1469	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	9	0	0	31	0	0	0	725	0	9	1815	0
Grp Sat Flow(s),veh/h/ln	1744	0	0	1469	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.0	1.4	0.0	0.0	0.0	4.0	0.0	0.5	11.1	0.0
Cycle Q Clear(g_c), s	0.5	0.0	0.0	1.9	0.0	0.0	0.0	4.0	0.0	0.5	11.1	0.0
Prop In Lane	0.22		0.78	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	0	0	121	0	44	2	2936	1314	16	3125	1398
V/C Ratio(X)	0.09	0.00	0.00	0.26	0.00	0.00	0.00	0.25	0.00	0.57	0.58	0.00
Avail Cap(c_a), veh/h	500	0	0	487	0	457	79	2936	1314	79	3125	1398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.7	0.0	0.0	43.4	0.0	0.0	0.0	1.6	0.0	44.4	1.3	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.4	0.0	0.0	0.0	0.2	0.0	11.2	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.8	0.0	0.0	0.0	2.0	0.0	0.3	5.4	0.0
LnGrp Delay(d),s/veh	43.0	0.0	0.0	43.8	0.0	0.0	0.0	1.8	0.0	55.7	2.1	0.0
LnGrp LOS	D			D				A		E	A	
Approach Vol, veh/h		9			31			725			1824	
Approach Delay, s/veh		43.0			43.8			1.8			2.3	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	78.7		6.5	0.0	83.5		6.5
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	4.8	47.0		26.0	4.0	47.0		26.0
Max Q Clear Time (g_c+I1), s	2.5	6.0		3.9	0.0	13.1		2.5
Green Ext Time (p_c), s	0.0	7.9		0.1	0.0	24.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	2.8
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	257	108	690	1813	11
Future Volume (veh/h)	25	257	108	690	1813	11
Number	3	18	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	34	0	129	821	2295	14
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.74	0.74	0.84	0.84	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	43	39	133	3217	2833	1268
Arrive On Green	0.02	0.00	0.08	0.91	0.80	0.80
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	34	0	129	821	2295	14
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	2.3	0.0	8.7	3.3	44.1	0.2
Cycle Q Clear(g_c), s	2.3	0.0	8.7	3.3	44.1	0.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	43	39	133	3217	2833	1268
V/C Ratio(X)	0.78	0.00	0.97	0.26	0.81	0.01
Avail Cap(c_a), veh/h	340	303	133	3217	2833	1268
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.2	0.0	55.4	0.6	6.8	2.4
Incr Delay (d2), s/veh	20.1	0.0	68.1	0.2	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	6.8	1.7	22.1	0.1
LnGrp Delay(d),s/veh	78.4	0.0	123.5	0.8	9.4	2.4
LnGrp LOS	E		F	A	A	A
Approach Vol, veh/h	34			950	2309	
Approach Delay, s/veh	78.4			17.5	9.4	
Approach LOS	E			B	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		113.1			13.0	100.1		6.9
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0
Max Green Setting (Gmax), s		88.0			9.0	75.0		23.0
Max Q Clear Time (g_c+I1), s		5.3			10.7	46.1		4.3
Green Ext Time (p_c), s		10.0			0.0	26.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	6	137	76	28	11	116	588	53	45	2146	82
Future Volume (veh/h)	67	6	137	76	28	11	116	588	53	45	2146	82
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1863	1520	1520	1520
Adj Flow Rate, veh/h	76	7	0	101	37	15	123	626	56	46	2212	85
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.75	0.75	0.75	0.94	0.94	0.94	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	12	162	152	41	17	98	2770	1239	51	2188	979
Arrive On Green	0.10	0.10	0.00	0.10	0.10	0.11	0.06	0.78	0.78	0.04	0.76	0.76
Sat Flow, veh/h	1181	122	1583	1095	401	163	1632	3539	1583	1447	2887	1292
Grp Volume(v), veh/h	83	0	0	153	0	0	123	626	56	46	2212	85
Grp Sat Flow(s),veh/h/ln	1303	0	1583	1659	0	0	1632	1770	1583	1447	1444	1292
Q Serve(g_s), s	0.0	0.0	0.0	4.3	0.0	0.0	9.0	7.0	1.2	4.8	113.7	2.6
Cycle Q Clear(g_c), s	9.2	0.0	0.0	13.5	0.0	0.0	9.0	7.0	1.2	4.8	113.7	2.6
Prop In Lane	0.92		1.00	0.66		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	179	0	162	210	0	0	98	2770	1239	51	2188	979
V/C Ratio(X)	0.46	0.00	0.00	0.73	0.00	0.00	1.26	0.23	0.05	0.91	1.01	0.09
Avail Cap(c_a), veh/h	263	0	259	302	0	0	98	2770	1239	106	2188	979
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.6	0.0	0.0	66.3	0.0	0.0	70.5	4.3	3.7	72.1	18.2	4.7
Incr Delay (d2), s/veh	0.7	0.0	0.0	2.1	0.0	0.0	174.7	0.2	0.1	18.8	22.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	6.4	0.0	0.0	8.8	3.5	0.5	2.2	51.4	0.9
LnGrp Delay(d),s/veh	65.3	0.0	0.0	68.4	0.0	0.0	245.2	4.5	3.7	91.0	40.2	4.9
LnGrp LOS	E			E			F	A	A	F	F	A
Approach Vol, veh/h		83			153			805			2343	
Approach Delay, s/veh		65.3			68.4			41.2			39.9	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.3	121.4		19.3	13.0	117.7		19.3
Change Period (Y+Rc), s	3.5	4.1		3.5	3.5	4.1		3.5
Max Green Setting (Gmax), s	11.5	102.4		25.0	9.5	104.4		25.0
Max Q Clear Time (g_c+I1), s	10.8	9.0		15.5	11.0	115.7		11.2
Green Ext Time (p_c), s	0.0	7.3		0.3	0.0	0.0		0.2

Intersection Summary		
HCM 2010 Ctrl Delay	42.1	
HCM 2010 LOS	D	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	65	63	272	117	48	181	654	208	141	1630	635
Future Volume (veh/h)	196	65	63	272	117	48	181	654	208	141	1630	635
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.91	1.00		0.92
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1471	1471	1471
Adj Flow Rate, veh/h	363	120	117	290	337	72	283	1022	325	181	2090	814
Adj No. of Lanes	2	1	0	1	1	1	1	2	1	1	3	1
Peak Hour Factor	0.54	0.54	0.54	0.67	0.67	0.67	0.64	0.64	0.64	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	533	134	131	306	321	272	208	1489	608	198	1787	510
Arrive On Green	0.15	0.15	0.15	0.17	0.17	0.17	0.12	0.42	0.42	0.14	0.45	0.45
Sat Flow, veh/h	3442	866	844	1774	1863	1578	1774	3539	1444	1401	4015	1146
Grp Volume(v), veh/h	363	0	237	290	337	72	283	1022	325	181	2090	814
Grp Sat Flow(s),veh/h/ln	1721	0	1710	1774	1863	1578	1774	1770	1444	1401	1338	1146
Q Serve(g_s), s	14.4	0.0	19.7	23.4	25.0	5.7	17.0	34.1	24.4	18.5	64.5	64.5
Cycle Q Clear(g_c), s	14.4	0.0	19.7	23.4	25.0	5.7	17.0	34.1	24.4	18.5	64.5	64.5
Prop In Lane	1.00		0.49	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	533	0	265	306	321	272	208	1489	608	198	1787	510
V/C Ratio(X)	0.68	0.00	0.89	0.95	1.05	0.26	1.36	0.69	0.53	0.91	1.17	1.60
Avail Cap(c_a), veh/h	593	0	295	306	321	272	208	1489	608	222	1787	510
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.9	0.0	60.1	59.4	60.0	52.0	64.0	34.2	31.4	61.4	40.2	40.2
Incr Delay (d2), s/veh	2.0	0.0	24.3	37.4	63.7	0.2	190.2	2.6	3.4	33.8	82.8	277.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.0	11.1	14.7	18.5	2.5	19.3	17.1	10.3	9.0	37.5	59.7
LnGrp Delay(d),s/veh	59.9	0.0	84.4	96.8	123.7	52.2	254.2	36.8	34.7	95.1	123.1	317.6
LnGrp LOS	E		F	F	F	D	F	D	C	F	F	F
Approach Vol, veh/h		600			699			1630			3085	
Approach Delay, s/veh		69.6			105.2			74.1			172.8	
Approach LOS		E			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.5	65.0		29.0	21.0	68.5		26.5
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	23.6	55.0		25.0	17.0	61.0		25.0
Max Q Clear Time (g_c+I1), s	20.5	36.1		27.0	19.0	66.5		21.7
Green Ext Time (p_c), s	0.1	8.4		0.0	0.0	0.0		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	127.9
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	244	248	69	0	0	0	257	795	455	0	585	607
Future Volume (veh/h)	244	248	69	0	0	0	257	795	455	0	585	607
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				1863	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	271	276	77				268	828	474	0	622	0
Adj No. of Lanes	1	2	0				1	2	1	0	2	1
Peak Hour Factor	0.90	0.90	0.90				0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				2	2	2	0	2	2
Cap, veh/h	357	553	152				304	2422	1083	0	1613	722
Arrive On Green	0.20	0.20	0.19				0.17	0.68	0.68	0.00	0.46	0.00
Sat Flow, veh/h	1774	2747	752				1774	3539	1583	0	3632	1583
Grp Volume(v), veh/h	271	176	177				268	828	474	0	622	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1730				1774	1770	1583	0	1770	1583
Q Serve(g_s), s	10.1	6.2	6.4				10.3	6.7	9.4	0.0	8.1	0.0
Cycle Q Clear(g_c), s	10.1	6.2	6.4				10.3	6.7	9.4	0.0	8.1	0.0
Prop In Lane	1.00		0.43				1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	357	356	348				304	2422	1083	0	1613	722
V/C Ratio(X)	0.76	0.49	0.51				0.88	0.34	0.44	0.00	0.39	0.00
Avail Cap(c_a), veh/h	659	657	643				304	2422	1083	0	1613	722
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.84	0.84	0.84	0.00	1.00	0.00
Uniform Delay (d), s/veh	26.3	24.8	25.0				28.3	4.6	5.0	0.0	12.6	0.0
Incr Delay (d2), s/veh	1.3	0.4	0.4				20.7	0.3	1.1	0.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	3.1	3.1				6.8	3.3	4.4	0.0	4.1	0.0
LnGrp Delay(d),s/veh	27.6	25.2	25.4				49.0	4.9	6.1	0.0	13.3	0.0
LnGrp LOS	C	C	C				D	A	A		B	
Approach Vol, veh/h		624						1570			622	
Approach Delay, s/veh		26.3						12.8			13.3	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		51.9		18.1	16.0	35.9		
Change Period (Y+Rc), s		5.0		4.5	4.0	5.0		
Max Green Setting (Gmax), s		35.0		25.5	12.0	19.0		
Max Q Clear Time (g_c+I1), s		11.4		12.1	12.3	10.1		
Green Ext Time (p_c), s		11.4		1.5	0.0	3.4		

Intersection Summary		
HCM 2010 Ctrl Delay		15.9
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	37	152	14	0	156	0	1177	26	92	535	0
Future Volume (veh/h)	18	37	152	14	0	156	0	1177	26	92	535	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	0	1863	0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	21	43	175	16	0	181	0	1213	27	96	557	0
Adj No. of Lanes	0	1	1	1	0	1	0	3	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87	0.86	0.86	0.86	0.97	0.97	0.97	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	99	204	262	0	0	0	0	2009	45	127	2079	0
Arrive On Green	0.17	0.17	0.17	0.00	0.00	0.00	0.00	0.39	0.39	0.07	0.59	0.00
Sat Flow, veh/h	601	1231	1583		0		0	5287	114	1774	3632	0
Grp Volume(v), veh/h	64	0	175		0.0		0	803	437	96	557	0
Grp Sat Flow(s),veh/h/ln	1833	0	1583				0	1695	1843	1774	1770	0
Q Serve(g_s), s	1.0	0.0	3.4				0.0	6.1	6.1	1.7	2.5	0.0
Cycle Q Clear(g_c), s	1.0	0.0	3.4				0.0	6.1	6.1	1.7	2.5	0.0
Prop In Lane	0.33		1.00				0.00		0.06	1.00		0.00
Lane Grp Cap(c), veh/h	303	0	262				0	1331	723	127	2079	0
V/C Ratio(X)	0.21	0.00	0.67				0.00	0.60	0.60	0.76	0.27	0.00
Avail Cap(c_a), veh/h	1019	0	880				0	1675	910	274	2732	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	11.7	0.0	12.7				0.0	7.8	7.8	14.8	3.3	0.0
Incr Delay (d2), s/veh	0.3	0.0	2.9				0.0	0.4	0.8	8.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.7				0.0	2.9	3.2	1.1	1.2	0.0
LnGrp Delay(d),s/veh	12.0	0.0	15.6				0.0	8.3	8.6	23.6	3.3	0.0
LnGrp LOS	B		B					A	A	C	A	
Approach Vol, veh/h		239						1240			653	
Approach Delay, s/veh		14.7						8.4			6.3	
Approach LOS		B						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		9.4		23.0			6.3	16.7
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0
Max Green Setting (Gmax), s		18.0		25.0			5.0	16.0
Max Q Clear Time (g_c+I1), s		5.4		4.5			3.7	8.1
Green Ext Time (p_c), s		0.7		3.6			0.0	4.6

Intersection Summary	
HCM 2010 Ctrl Delay	8.5
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	62.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	235	55	198	764	41	98	14	87	32	9	60
Future Vol, veh/h	30	235	55	198	764	41	98	14	87	32	9	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	98	98	98	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	261	61	211	813	44	100	14	89	38	11	71

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	857	0	0	322	0	0	1656	1637	292	1666	1645	835
Stage 1	-	-	-	-	-	-	358	358	-	1257	1257	-
Stage 2	-	-	-	-	-	-	1298	1279	-	409	388	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	783	-	-	1238	-	-	~ 78	101	747	77	99	368
Stage 1	-	-	-	-	-	-	660	628	-	210	243	-
Stage 2	-	-	-	-	-	-	199	237	-	619	609	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	783	-	-	1238	-	-	~ 48	80	747	50	79	368
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 48	80	-	50	79	-
Stage 1	-	-	-	-	-	-	632	602	-	201	202	-
Stage 2	-	-	-	-	-	-	126	197	-	510	583	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	1.7	$ 421.6	183.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	51	747	783	-	-	1238	-	-	110
HCM Lane V/C Ratio	2.241	0.119	0.043	-	-	0.17	-	-	1.08
HCM Control Delay (s)	$ 741	10.5	9.8	-	-	8.5	-	-	183.2
HCM Lane LOS	F	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	11.6	0.4	0.1	-	-	0.6	-	-	7.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	289	1076	169	553	4	312	16	97	10	25	31
Future Volume (veh/h)	30	289	1076	169	553	4	312	16	97	10	25	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	33	314	0	184	601	4	351	0	0	11	27	34
Adj No. of Lanes	1	1	1	1	1	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	549	467	236	736	5	543	0	242	22	55	69
Arrive On Green	0.03	0.29	0.00	0.13	0.40	0.40	0.15	0.00	0.00	0.09	0.09	0.09
Sat Flow, veh/h	1774	1863	1583	1774	1848	12	3548	0	1583	261	640	806
Grp Volume(v), veh/h	33	314	0	184	0	605	351	0	0	72	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1861	1774	0	1583	1707	0	0
Q Serve(g_s), s	0.9	6.9	0.0	4.8	0.0	13.9	4.5	0.0	0.0	1.9	0.0	0.0
Cycle Q Clear(g_c), s	0.9	6.9	0.0	4.8	0.0	13.9	4.5	0.0	0.0	1.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.15		0.47
Lane Grp Cap(c), veh/h	53	549	467	236	0	741	543	0	242	147	0	0
V/C Ratio(X)	0.63	0.57	0.00	0.78	0.00	0.82	0.65	0.00	0.00	0.49	0.00	0.00
Avail Cap(c_a), veh/h	148	814	692	406	0	1084	1181	0	527	568	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.1	14.4	0.0	20.2	0.0	12.9	19.1	0.0	0.0	21.0	0.0	0.0
Incr Delay (d2), s/veh	11.6	0.9	0.0	5.5	0.0	3.2	1.3	0.0	0.0	2.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.6	0.0	2.7	0.0	7.7	2.3	0.0	0.0	1.0	0.0	0.0
LnGrp Delay(d),s/veh	34.7	15.3	0.0	25.6	0.0	16.1	20.4	0.0	0.0	23.5	0.0	0.0
LnGrp LOS	C	B		C		B	C			C		
Approach Vol, veh/h		347			789			351			72	
Approach Delay, s/veh		17.2			18.3			20.4			23.5	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		11.4	10.4	18.2		8.1	5.4	23.2
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		16.0	11.0	21.0		16.0	4.0	28.0
Max Q Clear Time (g_c+I1), s		6.5	6.8	8.9		3.9	2.9	15.9
Green Ext Time (p_c), s		0.9	0.2	1.4		0.2	0.0	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	18.8
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

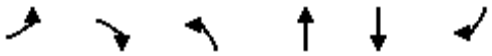
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	647	339	353	586	4	1054	10	642	22	7	11
Future Volume (veh/h)	1	647	339	353	586	4	1054	10	642	22	7	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	1	711	373	401	666	5	1117	0	676	32	10	16
Adj No. of Lanes	1	2	1	1	2	0	2	0	2	0	1	0
Peak Hour Factor	0.91	0.91	0.91	0.88	0.88	0.88	0.95	0.95	0.95	0.69	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	2	676	302	371	1436	11	1097	0	1641	139	43	69
Arrive On Green	0.00	0.19	0.19	0.21	0.40	0.40	0.31	0.00	0.31	0.15	0.15	0.15
Sat Flow, veh/h	1774	3539	1583	1774	3601	27	3548	0	3167	955	298	477
Grp Volume(v), veh/h	1	711	373	401	327	344	1117	0	676	58	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1858	1774	0	1583	1731	0	0
Q Serve(g_s), s	0.1	21.0	21.0	23.0	15.0	15.0	34.0	0.0	14.4	3.3	0.0	0.0
Cycle Q Clear(g_c), s	0.1	21.0	21.0	23.0	15.0	15.0	34.0	0.0	14.4	3.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.55		0.28
Lane Grp Cap(c), veh/h	2	676	302	371	706	741	1097	0	1641	252	0	0
V/C Ratio(X)	0.52	1.05	1.23	1.08	0.46	0.46	1.02	0.00	0.41	0.23	0.00	0.00
Avail Cap(c_a), veh/h	65	676	302	371	706	741	1097	0	1641	252	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	54.9	44.5	44.5	43.5	24.4	24.4	38.0	0.0	16.2	41.6	0.0	0.0
Incr Delay (d2), s/veh	132.4	49.2	130.6	70.1	0.5	0.5	31.9	0.0	0.8	2.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	14.8	20.1	18.5	7.4	7.7	21.5	0.0	6.5	1.7	0.0	0.0
LnGrp Delay(d),s/veh	187.3	93.7	175.1	113.6	24.9	24.8	69.9	0.0	17.0	43.7	0.0	0.0
LnGrp LOS	F	F	F	F	C	C	F		B	D		
Approach Vol, veh/h		1085			1072			1793			58	
Approach Delay, s/veh		121.8			58.1			50.0			43.7	
Approach LOS		F			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		38.0	27.0	25.0		20.0	4.1	47.9
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		34.0	23.0	21.0		16.0	4.0	40.0
Max Q Clear Time (g_c+I1), s		36.0	25.0	23.0		5.3	2.1	17.0
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	4.3

Intersection Summary	
HCM 2010 Ctrl Delay	71.5
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	77	0	1089	1957	4
Future Volume (Veh/h)	0	77	0	1089	1957	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	84	0	1184	2127	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					352	
pX, platoon unblocked	0.59	0.59	0.59			
vC, conflicting volume	2423	709	2131			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	979	0	483			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	100			
cM capacity (veh/h)	146	640	634			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	84	296	296	296	296	709	709	709	4
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	84	0	0	0	0	0	0	0	4
cSH	640	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.13	0.17	0.17	0.17	0.17	0.42	0.42	0.42	0.00
Queue Length 95th (ft)	11	0	0	0	0	0	0	0	0
Control Delay (s)	11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B								
Approach Delay (s)	11.5	0.0				0.0			
Approach LOS	B								

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	49.2%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	349	0	24	909	0	26
Future Vol, veh/h	349	0	24	909	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	379	0	26	988	0	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	379	0	1419	379
Stage 1	-	-	-	-	379	-
Stage 2	-	-	-	-	1040	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1179	-	151	668
Stage 1	-	-	-	-	692	-
Stage 2	-	-	-	-	341	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1179	-	148	668
Mov Cap-2 Maneuver	-	-	-	-	148	-
Stage 1	-	-	-	-	677	-
Stage 2	-	-	-	-	341	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	668	-	-	1179	-
HCM Lane V/C Ratio	0.042	-	-	0.022	-
HCM Control Delay (s)	10.6	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	349	5	0	909	23	0
Future Vol, veh/h	349	5	0	909	23	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	379	5	0	988	25	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	384	0	1370	382
Stage 1	-	-	-	-	382	-
Stage 2	-	-	-	-	988	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1174	-	161	665
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	361	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1174	-	161	665
Mov Cap-2 Maneuver	-	-	-	-	161	-
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	361	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	31.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	161	-	-	1174	-
HCM Lane V/C Ratio	0.155	-	-	-	-
HCM Control Delay (s)	31.4	-	-	0	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	235	55	198	764	41	98	14	87	32	9	60
Future Volume (veh/h)	30	235	55	198	764	41	98	14	87	32	9	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	33	261	61	211	813	44	100	14	89	38	11	71
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.98	0.98	0.98	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	903	211	768	1082	59	396	43	245	181	41	127
Arrive On Green	0.62	0.62	0.62	0.62	0.62	0.62	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	642	1461	341	1053	1751	95	1320	280	1583	298	268	819
Grp Volume(v), veh/h	33	0	322	211	0	857	114	0	89	120	0	0
Grp Sat Flow(s),veh/h/ln	642	0	1802	1053	0	1846	1600	0	1583	1385	0	0
Q Serve(g_s), s	1.4	0.0	2.9	4.1	0.0	11.7	0.0	0.0	1.8	1.0	0.0	0.0
Cycle Q Clear(g_c), s	13.0	0.0	2.9	7.0	0.0	11.7	2.0	0.0	1.8	3.0	0.0	0.0
Prop In Lane	1.00		0.19	1.00		0.05	0.88		1.00	0.32		0.59
Lane Grp Cap(c), veh/h	389	0	1114	768	0	1141	440	0	245	349	0	0
V/C Ratio(X)	0.08	0.00	0.29	0.27	0.00	0.75	0.26	0.00	0.36	0.34	0.00	0.00
Avail Cap(c_a), veh/h	649	0	1844	1195	0	1889	848	0	720	797	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.4	0.0	3.1	4.8	0.0	4.8	13.4	0.0	13.3	13.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.2	0.0	1.0	0.3	0.0	0.9	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.5	1.2	0.0	6.0	1.0	0.0	0.8	1.1	0.0	0.0
LnGrp Delay(d),s/veh	9.5	0.0	3.3	5.0	0.0	5.8	13.7	0.0	14.2	14.3	0.0	0.0
LnGrp LOS	A		A	A		A	B		B	B		
Approach Vol, veh/h		355			1068			203			120	
Approach Delay, s/veh		3.9			5.6			13.9			14.3	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		9.4		25.7		9.4		25.7
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		36.0		16.0		36.0
Max Q Clear Time (g_c+I1), s		4.0		15.0		5.0		13.7
Green Ext Time (p_c), s		0.7		2.2		0.4		8.1

Intersection Summary	
HCM 2010 Ctrl Delay	6.8
HCM 2010 LOS	A

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	11389	11503	11683	11630	11595	11559
Vehs Exited	10944	11082	11142	11146	11126	11086
Starting Vehs	563	584	517	544	566	555
Ending Vehs	1008	1005	1058	1028	1035	1023
Travel Distance (mi)	7004	6974	7133	6969	7150	7046
Travel Time (hr)	2359.0	2373.3	2250.6	2334.1	2313.0	2326.0
Total Delay (hr)	2123.7	2138.7	2011.0	2099.5	2072.5	2089.1
Total Stops	21761	21278	21518	21112	22037	21542
Fuel Used (gal)	730.9	732.0	707.1	722.6	722.2	722.9

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	11389	11503	11683	11630	11595	11559
Vehs Exited	10944	11082	11142	11146	11126	11086
Starting Vehs	563	584	517	544	566	555
Ending Vehs	1008	1005	1058	1028	1035	1023
Travel Distance (mi)	7004	6974	7133	6969	7150	7046
Travel Time (hr)	2359.0	2373.3	2250.6	2334.1	2313.0	2326.0
Total Delay (hr)	2123.7	2138.7	2011.0	2099.5	2072.5	2089.1
Total Stops	21761	21278	21518	21112	22037	21542
Fuel Used (gal)	730.9	732.0	707.1	722.6	722.2	722.9

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Old Tunnel Road	7	77.7	327.5	0.1	5
SR 24 WB On Ramp	6	14.3	21.2	0.1	10
	17	7.0	12.4	0.1	18
	16	1.2	9.5	0.1	26
	15	1.2	9.8	0.1	37
Acalanes Avenue	14	1.8	9.9	0.1	23
Proj. Driveway	11	2.0	7.4	0.1	26
Stanley Boulevard	5	21.7	267.9	0.1	9
School Dwy.	20	2.8	8.5	0.1	26
School Dwy.	19	2.5	16.3	0.1	30
	18	0.6	6.1	0.1	36
	39	0.4	10.0	0.1	33
Quandt Road	4	8.7	19.4	0.1	22
	37	1.3	7.7	0.1	34
Reliez Valle Road	3	1.5	7.1	0.1	37
	58	0.6	8.6	0.1	38
Greenvalley Drive	2	1.9	21.9	0.2	39
	22	1.0	16.6	0.2	38
Rancho View Drive	1	2.4	21.4	0.2	37
Total		150.6	809.1	1.9	21

Arterial Level of Service: SB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Rancho View Drive	1	96.4	483.7	0.2	5
	22	142.1	164.1	0.2	5
Greenvalley Drive	2	147.5	164.3	0.2	4
	58	232.3	255.4	0.2	3
Reliez Valle Road	3	108.4	701.4	0.1	3
	37	51.3	58.6	0.1	4
Springhill Road	4	60.2	67.4	0.1	4
	39	81.7	93.8	0.1	5
	18	68.9	187.8	0.1	4
School Dwy.	19	41.8	111.6	0.1	5
School Dwy.	20	69.9	83.5	0.1	6
Deer Hill Road	5	43.0	354.1	0.1	4
Proj. Driveway	11	2.1	9.0	0.1	27
Acalanes Avenue	14	1.0	6.5	0.1	30
	15	0.4	6.8	0.1	33
	16	2.8	11.2	0.1	33
	17	3.6	12.3	0.1	20
Mt. Diablo Boulevard	6	11.6	17.8	0.1	13
SR 24 EB Off Ramp	7	8.1	14.3	0.1	15
Total		1173.1	2803.4	2.0	5

Intersection: 1: Pleasant Hill Road & Rancho View Drive

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LTR	L	T	TR	T	TR
Maximum Queue (ft)	95	77	95	113	877	881
Average Queue (ft)	37	19	17	21	537	531
95th Queue (ft)	72	55	65	78	1164	1167
Link Distance (ft)	295		1099	1099	828	828
Upstream Blk Time (%)					55	54
Queuing Penalty (veh)					0	0
Storage Bay Dist (ft)		148				
Storage Blk Time (%)			0			
Queuing Penalty (veh)			0			

Intersection: 2: Pleasant Hill Road & Greenvalley Drive

Movement	EB	WB	NB	NB	SB	SB	SB	SB	B22	B22
Directions Served	LTR	LT	T	T	L	T	T	R	T	T
Maximum Queue (ft)	34	91	108	116	120	961	971	26	1137	1152
Average Queue (ft)	9	28	16	20	12	734	740	1	760	762
95th Queue (ft)	31	68	62	70	63	1324	1327	13	1577	1580
Link Distance (ft)	541	522	1181	1181		851	851		1099	1099
Upstream Blk Time (%)						65	70		15	19
Queuing Penalty (veh)						653	701		154	188
Storage Bay Dist (ft)					95			50		
Storage Blk Time (%)		1	1	0		72	75	0		
Queuing Penalty (veh)		0	0	0		6	1	0		

Intersection: 3: Pleasant Hill Road & Reliez Valle Road

Movement	EB	EB	NB	NB	NB	SB	SB	SB	B58	B58
Directions Served	L	R	L	T	T	T	T	R	T	T
Maximum Queue (ft)	378	482	200	165	116	534	532	155	1222	1223
Average Queue (ft)	132	342	91	24	22	492	492	18	1055	1055
95th Queue (ft)	432	563	163	87	74	582	574	101	1638	1634
Link Distance (ft)	441	441		328	328	430	430		1181	1181
Upstream Blk Time (%)	7	33				79	85		28	32
Queuing Penalty (veh)	0	0				732	792		258	299
Storage Bay Dist (ft)			230					130		
Storage Blk Time (%)			0	0			84	0		
Queuing Penalty (veh)			1	0			12	0		

Intersection: 4: Pleasant Hill Road & Springhill Road/Quandt Road

Movement	EB	EB	WB	NB	NB	NB	NB	B39	SB	SB	SB	SB
Directions Served	LT	R	LTR	L	T	T	R	T	L	T	T	R
Maximum Queue (ft)	651	125	404	223	408	285	101	20	130	414	429	96
Average Queue (ft)	541	66	165	167	156	106	11	1	44	386	390	48
95th Queue (ft)	826	165	351	256	431	299	51	14	125	414	411	127
Link Distance (ft)	616		497		564	564		432		310	310	
Upstream Blk Time (%)	68		3		0	0				61	75	
Queuing Penalty (veh)	0		0		2	0				802	992	
Storage Bay Dist (ft)		100		200			100		105			71
Storage Blk Time (%)	92	3		28		2	0		0	57	71	0
Queuing Penalty (veh)	144	2		88		1	0		0	26	60	1

Intersection: 4: Pleasant Hill Road & Springhill Road/Quandt Road

Movement	B37	B37	B37
Directions Served	T	T	
Maximum Queue (ft)	395	374	423
Average Queue (ft)	346	342	379
95th Queue (ft)	435	406	498
Link Distance (ft)	328	328	328
Upstream Blk Time (%)	30	46	73
Queuing Penalty (veh)	265	408	642
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Pleasant Hill Road & Deer Hill Road/Stanley Boulevard

Movement	EB	EB	EB	B27	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	L	TR	T	L	LT	R	L	T	T	R	L
Maximum Queue (ft)	98	100	192	314	210	557	524	366	266	286	158	201
Average Queue (ft)	72	92	162	107	164	521	400	289	163	180	59	102
95th Queue (ft)	102	115	206	271	276	545	737	386	251	271	117	198
Link Distance (ft)			100	382		504	504	279	279	279	279	
Upstream Blk Time (%)	1	8	43	0		83	32	29	0	0		
Queuing Penalty (veh)	0	0	176	2		0	0	85	0	1		
Storage Bay Dist (ft)	101	101			185							176
Storage Blk Time (%)	1	8	43		0	80						1
Queuing Penalty (veh)	2	19	157		1	163						7

Intersection: 5: Pleasant Hill Road & Deer Hill Road/Stanley Boulevard

Movement	SB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (ft)	304	283	324	75
Average Queue (ft)	234	231	302	68
95th Queue (ft)	342	266	316	98
Link Distance (ft)	229	229	229	
Upstream Blk Time (%)	15	8	53	
Queuing Penalty (veh)	126	70	458	
Storage Bay Dist (ft)				50
Storage Blk Time (%)	20		49	13
Queuing Penalty (veh)	36		401	90

Intersection: 6: Pleasant Hill Road & Mt. Diablo Boulevard/SR 24 WB On Ramp

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	T	T	R
Maximum Queue (ft)	238	222	145	232	254	271	75	142	161	153
Average Queue (ft)	127	80	71	128	78	203	70	68	77	49
95th Queue (ft)	211	167	126	207	190	293	91	125	135	124
Link Distance (ft)		325	325	241	241	241		150	150	150
Upstream Blk Time (%)	0	1		0	0	5		0	0	0
Queuing Penalty (veh)	0	0		1	1	22		0	2	1
Storage Bay Dist (ft)	282						50			
Storage Blk Time (%)	1					27	7			
Queuing Penalty (veh)	2					128	27			

Intersection: 7: Pleasant Hill Road & SR 24 EB Off Ramp/Old Tunnel Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	R	T	T	TR	L	T	T
Maximum Queue (ft)	73	87	41	264	596	608	642	103	147	147
Average Queue (ft)	32	44	12	101	139	464	599	41	50	59
95th Queue (ft)	63	76	35	217	457	805	701	79	114	118
Link Distance (ft)	584	584	476	476	592	592	592		241	241
Upstream Blk Time (%)				0	0	10	89			
Queuing Penalty (veh)				0	0	0	0			
Storage Bay Dist (ft)								100		
Storage Blk Time (%)								0	1	
Queuing Penalty (veh)								1	1	

Intersection: 8: Brown Avenue & Deer Hill Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	50	26	62	22	137	71	109
Average Queue (ft)	9	1	20	1	55	36	50
95th Queue (ft)	31	12	46	14	107	58	86
Link Distance (ft)		1073		1894	461	461	384
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	50		50				
Storage Blk Time (%)	0		1				
Queuing Penalty (veh)	1		5				

Intersection: 9: First Street/Sierra Vista Way & Deer Hill Road

Movement	EB	EB	EB	WB	WB	B29	NB	NB	SB
Directions Served	L	T	R	L	TR	T	L	LT	LTR
Maximum Queue (ft)	67	292	240	174	394	9	238	182	99
Average Queue (ft)	17	89	118	83	154	0	126	51	42
95th Queue (ft)	45	190	241	158	322	6	207	137	79
Link Distance (ft)		325			656	1073	285	285	107
Upstream Blk Time (%)		0			0		0		0
Queuing Penalty (veh)		1			3		0		0
Storage Bay Dist (ft)	71		215	150					
Storage Blk Time (%)	0	8	2	0	7			0	
Queuing Penalty (veh)	1	96	6	1	13			0	

Intersection: 10: SR 24 WB Ramps/Laurel Drive & Deer Hill Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	TR	L	LT	R	R	LTR
Maximum Queue (ft)	5	477	494	165	200	337	322	322	308	303	288	97
Average Queue (ft)	0	464	466	102	182	214	151	291	289	243	149	39
95th Queue (ft)	3	472	478	194	233	385	298	303	298	345	336	79
Link Distance (ft)		448	448			325	325	273	273	273	273	294
Upstream Blk Time (%)		92	87			5	0	68	66	13	5	
Queuing Penalty (veh)		0	0			26	1	0	0	0	0	
Storage Bay Dist (ft)	95			140	175							
Storage Blk Time (%)		93	19	2	32	1						
Queuing Penalty (veh)		1	70	6	107	3						

Intersection: 11: Pleasant Hill Road & Proj. Driveway

Movement	EB	NB	SB
Directions Served	R	T	T
Maximum Queue (ft)	92	135	6
Average Queue (ft)	32	27	0
95th Queue (ft)	64	121	4
Link Distance (ft)	174	226	279
Upstream Blk Time (%)		1	
Queuing Penalty (veh)		2	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Proj. Driveway & Deer Hill Road

Movement	EB	WB	NB
Directions Served	TR	L	LR
Maximum Queue (ft)	11	34	46
Average Queue (ft)	1	3	19
95th Queue (ft)	9	20	45
Link Distance (ft)	1063		144
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: Proj. Driveway & Deer Hill Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	53
Average Queue (ft)	20
95th Queue (ft)	48
Link Distance (ft)	266
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: Pleasant Hill Road & Acalanes Avenue

Movement	WB	NB	NB	SB
Directions Served	R	T	TR	T
Maximum Queue (ft)	69	4	24	25
Average Queue (ft)	30	0	1	1
95th Queue (ft)	54	3	9	9
Link Distance (ft)	167	282	282	226
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: Pleasant Hill Road

Movement	WB	NB	NB	SB
Directions Served	R	T	T	R
Maximum Queue (ft)	346	33	77	24
Average Queue (ft)	144	2	14	1
95th Queue (ft)	287	14	49	9
Link Distance (ft)	574	244	244	282
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: Pleasant Hill Road

Movement	EB	NB	SB	SB
Directions Served	R	R	T	T
Maximum Queue (ft)	558	78	31	147
Average Queue (ft)	528	16	1	37
95th Queue (ft)	550	53	18	103
Link Distance (ft)	505	288	244	244
Upstream Blk Time (%)	98			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: Pleasant Hill Road

Movement	WB	NB	NB	SB	SB
Directions Served	R	T	T	T	TR
Maximum Queue (ft)	305	157	177	6	84
Average Queue (ft)	121	17	77	0	11
95th Queue (ft)	233	85	187	4	52
Link Distance (ft)	458	150	150	288	288
Upstream Blk Time (%)		0	4		
Queuing Penalty (veh)		2	22		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 18: Pleasant Hill Road

Movement	WB	SB	SB	B39	B39
Directions Served	R	T	T	T	T
Maximum Queue (ft)	103	523	545	606	603
Average Queue (ft)	71	479	511	570	574
95th Queue (ft)	107	596	532	649	604
Link Distance (ft)	82	432	432	564	564
Upstream Blk Time (%)	4	33	92	18	23
Queuing Penalty (veh)	0	407	1133	223	279
Storage Bay Dist (ft)					
Storage Blk Time (%)		14			
Queuing Penalty (veh)		0			

Intersection: 19: Pleasant Hill Road & School Dwy.

Movement	NB	SB	SB
Directions Served	TR	T	T
Maximum Queue (ft)	10	359	381
Average Queue (ft)	0	278	346
95th Queue (ft)	7	452	366
Link Distance (ft)	654	266	266
Upstream Blk Time (%)		24	86
Queuing Penalty (veh)		304	1098
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 20: Pleasant Hill Road & School Dwy.

Movement	WB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	224	696	680
Average Queue (ft)	150	606	665
95th Queue (ft)	235	805	675
Link Distance (ft)	193	654	654
Upstream Blk Time (%)	13	15	38
Queuing Penalty (veh)	0	200	496
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 13717

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	0	18	0	0	1	31	1494	0	0	861	14
Future Volume (veh/h)	22	0	18	0	0	1	31	1494	0	0	861	14
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	0	1863	1900
Adj Flow Rate, veh/h	33	0	27	0	0	4	35	1698	0	0	897	15
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.67	0.67	0.67	0.25	0.25	0.25	0.88	0.88	0.88	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	133	0	32	0	0	81	659	2827	0	0	1225	20
Arrive On Green	0.05	0.00	0.05	0.00	0.00	0.05	0.37	0.80	0.00	0.00	0.34	0.34
Sat Flow, veh/h	776	0	635	0	0	1583	1774	3632	0	0	3655	60
Grp Volume(v), veh/h	60	0	0	0	0	4	35	1698	0	0	446	466
Grp Sat Flow(s),veh/h/ln	1411	0	0	0	0	1583	1774	1770	0	0	1770	1852
Q Serve(g_s), s	2.4	0.0	0.0	0.0	0.0	0.1	0.8	11.1	0.0	0.0	13.2	13.2
Cycle Q Clear(g_c), s	2.6	0.0	0.0	0.0	0.0	0.1	0.8	11.1	0.0	0.0	13.2	13.2
Prop In Lane	0.55		0.45	0.00		1.00	1.00		0.00	0.00		0.03
Lane Grp Cap(c), veh/h	165	0	0	0	0	81	659	2827	0	0	608	637
V/C Ratio(X)	0.36	0.00	0.00	0.00	0.00	0.05	0.05	0.60	0.00	0.00	0.73	0.73
Avail Cap(c_a), veh/h	484	0	0	0	0	422	659	2827	0	0	767	803
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	28.3	0.0	0.0	0.0	0.0	27.1	12.1	2.3	0.0	0.0	17.3	17.3
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.0	0.0	0.1	0.0	1.0	0.0	0.0	7.6	7.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	0.1	0.4	5.6	0.0	0.0	7.7	8.0
LnGrp Delay(d),s/veh	29.3	0.0	0.0	0.0	0.0	27.2	12.1	3.3	0.0	0.0	24.9	24.6
LnGrp LOS	C					C	B	A			C	C
Approach Vol, veh/h		60			4			1733			912	
Approach Delay, s/veh		29.3			27.2			3.5			24.7	
Approach LOS		C			C			A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		52.9		7.1	27.3	25.6		7.1
Change Period (Y+Rc), s		5.0		4.0	5.0	* 5		4.0
Max Green Setting (Gmax), s		35.0		16.0	5.0	* 26		16.0
Max Q Clear Time (g_c+I1), s		13.1		2.1	2.8	15.2		4.6
Green Ext Time (p_c), s		16.4		0.0	0.0	5.4		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	11.2
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	5	46	0	20	11	1521	60	40	843	0
Future Volume (veh/h)	2	0	5	46	0	20	11	1521	60	40	843	0
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	4	0	10	64	0	0	12	1690	0	42	878	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.50	0.50	0.50	0.72	0.72	0.72	0.90	0.90	0.90	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	11	69	173	0	91	21	2653	1187	54	2719	1216
Arrive On Green	0.06	0.00	0.06	0.06	0.00	0.00	0.01	0.75	0.00	0.03	0.77	0.00
Sat Flow, veh/h	296	186	1205	1452	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	14	0	0	64	0	0	12	1690	0	42	878	0
Grp Sat Flow(s),veh/h/ln	1686	0	0	1452	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.0	2.8	0.0	0.0	0.5	18.3	0.0	1.9	6.1	0.0
Cycle Q Clear(g_c), s	0.6	0.0	0.0	3.4	0.0	0.0	0.5	18.3	0.0	1.9	6.1	0.0
Prop In Lane	0.29		0.71	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	155	0	0	173	0	91	21	2653	1187	54	2719	1216
V/C Ratio(X)	0.09	0.00	0.00	0.37	0.00	0.00	0.58	0.64	0.00	0.78	0.32	0.00
Avail Cap(c_a), veh/h	564	0	0	548	0	515	89	2653	1187	89	2719	1216
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.8	0.0	0.0	37.1	0.0	0.0	39.3	4.8	0.0	38.5	2.9	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.5	0.0	0.0	9.1	1.2	0.0	8.8	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	1.4	0.0	0.0	0.3	9.1	0.0	1.1	3.0	0.0
LnGrp Delay(d),s/veh	36.0	0.0	0.0	37.6	0.0	0.0	48.4	6.0	0.0	47.3	3.2	0.0
LnGrp LOS	D			D			D	A		D	A	
Approach Vol, veh/h		14			64			1702			920	
Approach Delay, s/veh		36.0			37.6			6.3			5.2	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.4	65.0		8.6	4.9	66.5		8.6
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	4.6	37.0		26.0	4.0	37.0		26.0
Max Q Clear Time (g_c+I1), s	2.9	20.3		5.4	2.5	8.1		2.6
Green Ext Time (p_c), s	0.0	13.1		0.2	0.0	9.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	6.8
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	21	126	146	1557	880	23
Future Volume (veh/h)	21	126	146	1557	880	23
Number	3	18	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	26	0	155	1656	926	24
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.81	0.81	0.94	0.94	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	42	37	148	2925	2394	1071
Arrive On Green	0.02	0.00	0.08	0.83	0.68	0.68
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	26	0	155	1656	926	24
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	0.9	0.0	5.0	9.2	6.9	0.3
Cycle Q Clear(g_c), s	0.9	0.0	5.0	9.2	6.9	0.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	42	37	148	2925	2394	1071
V/C Ratio(X)	0.63	0.00	1.05	0.57	0.39	0.02
Avail Cap(c_a), veh/h	680	607	148	2925	2394	1071
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.0	0.0	27.5	1.7	4.3	3.2
Incr Delay (d2), s/veh	10.9	0.0	87.5	0.8	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.2	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	6.0	4.5	3.5	0.1
LnGrp Delay(d),s/veh	39.9	0.0	115.1	2.5	4.7	3.2
LnGrp LOS	D		F	A	A	A
Approach Vol, veh/h	26			1811	950	
Approach Delay, s/veh	39.9			12.1	4.7	
Approach LOS	D			B	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		54.6			9.0	45.6		5.4
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0
Max Green Setting (Gmax), s		28.0			5.0	19.0		23.0
Max Q Clear Time (g_c+I1), s		11.2			7.0	8.9		2.9
Green Ext Time (p_c), s		13.0			0.0	5.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	9.9
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	8	117	32	7	8	131	1650	56	9	984	33
Future Volume (veh/h)	53	8	117	32	7	8	131	1650	56	9	984	33
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1863	1520	1520	1520
Adj Flow Rate, veh/h	60	9	0	40	9	10	136	1719	58	9	1025	34
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.89	0.89	0.89	0.81	0.81	0.81	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	13	99	143	20	18	169	2794	1250	13	2031	909
Arrive On Green	0.06	0.06	0.00	0.06	0.06	0.06	0.10	0.79	0.79	0.01	0.70	0.70
Sat Flow, veh/h	1402	210	1583	1080	319	285	1774	3539	1583	1447	2887	1292
Grp Volume(v), veh/h	69	0	0	59	0	0	136	1719	58	9	1025	34
Grp Sat Flow(s),veh/h/ln	1613	0	1583	1684	0	0	1774	1770	1583	1447	1444	1292
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	6.0	15.9	0.6	0.5	13.1	0.6
Cycle Q Clear(g_c), s	3.1	0.0	0.0	2.5	0.0	0.0	6.0	15.9	0.6	0.5	13.1	0.6
Prop In Lane	0.87		1.00	0.68		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	185	0	99	181	0	0	169	2794	1250	13	2031	909
V/C Ratio(X)	0.37	0.00	0.00	0.33	0.00	0.00	0.80	0.62	0.05	0.69	0.50	0.04
Avail Cap(c_a), veh/h	544	0	495	552	0	0	188	2794	1250	81	2031	909
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	0.0	0.0	36.3	0.0	0.0	35.5	3.4	1.8	39.5	5.5	3.6
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.4	0.0	0.0	17.8	1.0	0.1	20.9	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	1.3	0.0	0.0	3.8	7.8	0.3	0.3	5.4	0.2
LnGrp Delay(d),s/veh	37.0	0.0	0.0	36.7	0.0	0.0	53.2	4.5	1.9	60.4	6.4	3.7
LnGrp LOS	D			D			D	A	A	E	A	A
Approach Vol, veh/h		69			59			1913			1068	
Approach Delay, s/veh		37.0			36.7			7.9			6.7	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.2	67.3		8.5	11.1	60.4		8.5
Change Period (Y+Rc), s	3.5	4.1		3.5	3.5	4.1		3.5
Max Green Setting (Gmax), s	4.5	39.4		25.0	8.5	35.4		25.0
Max Q Clear Time (g_c+I1), s	2.5	17.9		4.5	8.0	15.1		5.1
Green Ext Time (p_c), s	0.0	16.6		0.2	0.0	9.8		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	415	91	52	253	98	79	142	1292	203	109	880	258
Future Volume (veh/h)	415	91	52	253	98	79	142	1292	203	109	880	258
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.91	1.00		0.91
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1471	1471	1471
Adj Flow Rate, veh/h	456	100	57	288	339	130	154	1404	221	116	936	274
Adj No. of Lanes	2	1	0	1	1	1	1	2	1	1	3	1
Peak Hour Factor	0.91	0.91	0.91	0.61	0.61	0.61	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	533	172	98	348	366	310	180	1484	627	112	1651	468
Arrive On Green	0.15	0.15	0.15	0.20	0.20	0.20	0.10	0.43	0.43	0.08	0.41	0.41
Sat Flow, veh/h	3442	1113	635	1774	1863	1578	1774	3427	1448	1401	4015	1138
Grp Volume(v), veh/h	456	0	157	288	339	130	154	1404	221	116	936	274
Grp Sat Flow(s),veh/h/ln	1721	0	1748	1774	1863	1578	1774	1714	1448	1401	1338	1138
Q Serve(g_s), s	16.1	0.0	10.4	19.5	22.3	9.0	10.7	49.2	12.8	10.0	22.4	23.4
Cycle Q Clear(g_c), s	16.1	0.0	10.4	19.5	22.3	9.0	10.7	49.2	12.8	10.0	22.4	23.4
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	533	0	270	348	366	310	180	1484	627	112	1651	468
V/C Ratio(X)	0.86	0.00	0.58	0.83	0.93	0.42	0.85	0.95	0.35	1.04	0.57	0.59
Avail Cap(c_a), veh/h	688	0	350	355	373	316	270	1484	627	112	1651	468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	0.0	49.1	48.2	49.3	44.0	55.2	34.1	23.7	57.5	28.3	28.5
Incr Delay (d2), s/veh	6.9	0.0	0.7	13.7	28.0	0.3	10.6	13.7	1.6	94.8	1.4	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	0.0	5.1	10.8	14.3	3.9	5.7	26.0	5.4	6.8	8.4	8.0
LnGrp Delay(d),s/veh	58.4	0.0	49.8	61.9	77.4	44.3	65.8	47.7	25.3	152.9	29.7	33.8
LnGrp LOS	E		D	E	E	D	E	D	C	F	C	C
Approach Vol, veh/h		613			757			1779			1326	
Approach Delay, s/veh		56.2			65.8			46.5			41.3	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.0	59.1		28.5	16.7	56.4		23.3
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	10.0	48.0		25.0	19.0	39.0		25.0
Max Q Clear Time (g_c+I1), s	12.0	51.2		24.3	12.7	25.4		18.1
Green Ext Time (p_c), s	0.0	0.0		0.2	0.1	7.9		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	49.6
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	456	278	0	0	0	247	583	424	0	582	570
Future Volume (veh/h)	229	456	278	0	0	0	247	583	424	0	582	570
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				1863	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	260	518	316				271	641	466	0	626	0
Adj No. of Lanes	1	2	0				1	2	1	0	2	1
Peak Hour Factor	0.88	0.88	0.88				0.91	0.91	0.91	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				2	2	2	0	2	2
Cap, veh/h	524	625	380				304	2014	901	0	1205	539
Arrive On Green	0.30	0.30	0.30				0.17	0.57	0.57	0.00	0.34	0.00
Sat Flow, veh/h	1774	2117	1288				1774	3539	1583	0	3632	1583
Grp Volume(v), veh/h	260	433	401				271	641	466	0	626	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1635				1774	1770	1583	0	1770	1583
Q Serve(g_s), s	8.5	16.0	16.0				10.5	6.7	12.6	0.0	9.9	0.0
Cycle Q Clear(g_c), s	8.5	16.0	16.0				10.5	6.7	12.6	0.0	9.9	0.0
Prop In Lane	1.00		0.79				1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	524	522	483				304	2014	901	0	1205	539
V/C Ratio(X)	0.50	0.83	0.83				0.89	0.32	0.52	0.00	0.52	0.00
Avail Cap(c_a), veh/h	646	645	596				304	2014	901	0	1205	539
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.59	0.59	0.59	0.00	1.00	0.00
Uniform Delay (d), s/veh	20.4	23.0	23.0				28.4	7.9	9.2	0.0	18.5	0.0
Incr Delay (d2), s/veh	0.3	6.1	6.7				17.0	0.2	1.3	0.0	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	8.7	8.1				6.6	3.3	5.8	0.0	5.1	0.0
LnGrp Delay(d),s/veh	20.6	29.1	29.7				45.4	8.2	10.5	0.0	20.1	0.0
LnGrp LOS	C	C	C				D	A	B		C	
Approach Vol, veh/h		1094						1378			626	
Approach Delay, s/veh		27.3						16.3			20.1	
Approach LOS		C						B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		44.8		25.2	16.0	28.8		
Change Period (Y+Rc), s		5.0		4.5	4.0	5.0		
Max Green Setting (Gmax), s		35.0		25.5	12.0	19.0		
Max Q Clear Time (g_c+I1), s		14.6		18.0	12.5	11.9		
Green Ext Time (p_c), s		8.6		2.6	0.0	2.9		

Intersection Summary		
HCM 2010 Ctrl Delay		21.0
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	41	210	16	0	148	0	1047	22	123	735	0
Future Volume (veh/h)	53	41	210	16	0	148	0	1047	22	123	735	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	0	1863	0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	56	43	221	19	0	178	0	1163	24	137	817	0
Adj No. of Lanes	0	1	1	1	0	1	0	3	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.83	0.83	0.83	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	214	164	330	0	0	0	0	1841	38	175	2013	0
Arrive On Green	0.21	0.21	0.21	0.00	0.00	0.00	0.00	0.36	0.36	0.10	0.57	0.00
Sat Flow, veh/h	1025	787	1583		0		0	5296	106	1774	3632	0
Grp Volume(v), veh/h	99	0	221		0.0		0	769	418	137	817	0
Grp Sat Flow(s),veh/h/ln	1812	0	1583				0	1695	1844	1774	1770	0
Q Serve(g_s), s	1.6	0.0	4.6				0.0	6.8	6.8	2.7	4.7	0.0
Cycle Q Clear(g_c), s	1.6	0.0	4.6				0.0	6.8	6.8	2.7	4.7	0.0
Prop In Lane	0.57		1.00				0.00		0.06	1.00		0.00
Lane Grp Cap(c), veh/h	378	0	330				0	1217	662	175	2013	0
V/C Ratio(X)	0.26	0.00	0.67				0.00	0.63	0.63	0.78	0.41	0.00
Avail Cap(c_a), veh/h	806	0	705				0	1509	821	296	2559	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	11.9	0.0	13.1				0.0	9.6	9.6	15.8	4.3	0.0
Incr Delay (d2), s/veh	0.4	0.0	2.3				0.0	0.6	1.1	7.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	2.2				0.0	3.2	3.6	1.7	2.2	0.0
LnGrp Delay(d),s/veh	12.3	0.0	15.4				0.0	10.1	10.6	23.3	4.5	0.0
LnGrp LOS	B		B					B	B	C	A	
Approach Vol, veh/h		320						1187			954	
Approach Delay, s/veh		14.5						10.3			7.2	
Approach LOS		B						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		11.5		24.5			7.5	16.9
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0
Max Green Setting (Gmax), s		16.0		26.0			6.0	16.0
Max Q Clear Time (g_c+I1), s		6.6		6.7			4.7	8.8
Green Ext Time (p_c), s		0.9		5.5			0.0	4.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.6
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	13	0	0	14	0	0	0	0	0	0	0
Future Vol, veh/h	0	13	0	0	14	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	98	98	98	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	14	0	0	15	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	15	0	0	14	0	0	29	29	14	29	29	15
Stage 1	-	-	-	-	-	-	14	14	-	15	15	-
Stage 2	-	-	-	-	-	-	15	15	-	14	14	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1603	-	-	1604	-	-	980	864	1066	980	864	1065
Stage 1	-	-	-	-	-	-	1006	884	-	1005	883	-
Stage 2	-	-	-	-	-	-	1005	883	-	1006	884	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1603	-	-	1604	-	-	980	864	1066	980	864	1065
Mov Cap-2 Maneuver	-	-	-	-	-	-	980	864	-	980	864	-
Stage 1	-	-	-	-	-	-	1006	884	-	1005	883	-
Stage 2	-	-	-	-	-	-	1005	883	-	1006	884	-

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

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	1603	-	-	1604	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	-	0	-	-	0	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	341	1242	140	275	8	220	16	103	4	31	23
Future Volume (veh/h)	31	341	1242	140	275	8	220	16	103	4	31	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	35	383	0	161	316	9	289	0	0	5	41	31
Adj No. of Lanes	1	1	1	1	1	0	2	0	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.80	0.80	0.80	0.75	0.75	0.75
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	495	420	205	629	18	502	0	224	11	88	67
Arrive On Green	0.03	0.27	0.00	0.12	0.35	0.35	0.14	0.00	0.00	0.10	0.10	0.10
Sat Flow, veh/h	1774	1863	1583	1774	1802	51	3548	0	1583	113	923	698
Grp Volume(v), veh/h	35	383	0	161	0	325	289	0	0	77	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1854	1774	0	1583	1734	0	0
Q Serve(g_s), s	0.8	8.0	0.0	3.7	0.0	5.8	3.2	0.0	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	0.8	8.0	0.0	3.7	0.0	5.8	3.2	0.0	0.0	1.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.06		0.40
Lane Grp Cap(c), veh/h	57	495	420	205	0	647	502	0	224	166	0	0
V/C Ratio(X)	0.62	0.77	0.00	0.79	0.00	0.50	0.58	0.00	0.00	0.47	0.00	0.00
Avail Cap(c_a), veh/h	169	712	605	254	0	797	1355	0	605	662	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.0	14.2	0.0	18.0	0.0	10.8	16.8	0.0	0.0	17.9	0.0	0.0
Incr Delay (d2), s/veh	10.4	3.3	0.0	12.2	0.0	0.6	1.0	0.0	0.0	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.5	0.0	2.5	0.0	3.0	1.6	0.0	0.0	0.9	0.0	0.0
LnGrp Delay(d),s/veh	30.5	17.6	0.0	30.2	0.0	11.4	17.8	0.0	0.0	20.0	0.0	0.0
LnGrp LOS	C	B		C		B	B			B		
Approach Vol, veh/h		418			486			289			77	
Approach Delay, s/veh		18.6			17.6			17.8			20.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		9.9	8.8	15.1		8.0	5.3	18.6
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		16.0	6.0	16.0		16.0	4.0	18.0
Max Q Clear Time (g_c+I1), s		5.2	5.7	10.0		3.8	2.8	7.8
Green Ext Time (p_c), s		0.7	0.0	1.2		0.2	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

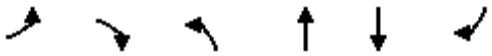
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	754	284	210	283	11	553	10	866	23	10	7
Future Volume (veh/h)	10	754	284	210	283	11	553	10	866	23	10	7
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	11	829	0	223	301	12	660	0	1019	25	11	8
Adj No. of Lanes	1	2	1	1	2	0	2	0	2	0	1	0
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.85	0.85	0.85	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	865	387	256	1312	52	907	0	1267	177	78	57
Arrive On Green	0.01	0.24	0.00	0.14	0.38	0.38	0.26	0.00	0.26	0.18	0.18	0.18
Sat Flow, veh/h	1774	3539	1583	1774	3470	138	3548	0	3167	998	439	319
Grp Volume(v), veh/h	11	829	0	223	153	160	660	0	1019	44	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1838	1774	0	1583	1756	0	0
Q Serve(g_s), s	0.6	20.8	0.0	11.1	5.3	5.3	15.3	0.0	23.0	1.9	0.0	0.0
Cycle Q Clear(g_c), s	0.6	20.8	0.0	11.1	5.3	5.3	15.3	0.0	23.0	1.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	0.57		0.18
Lane Grp Cap(c), veh/h	19	865	387	256	669	695	907	0	1267	312	0	0
V/C Ratio(X)	0.58	0.96	0.00	0.87	0.23	0.23	0.73	0.00	0.80	0.14	0.00	0.00
Avail Cap(c_a), veh/h	79	865	387	256	669	695	907	0	1267	312	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	44.3	33.5	0.0	37.7	19.0	19.1	30.6	0.0	23.9	31.2	0.0	0.0
Incr Delay (d2), s/veh	25.0	21.0	0.0	26.0	0.2	0.2	5.1	0.0	5.5	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	12.7	0.0	7.2	2.6	2.7	8.2	0.0	12.1	1.0	0.0	0.0
LnGrp Delay(d),s/veh	69.4	54.6	0.0	63.6	19.2	19.2	35.7	0.0	29.4	32.1	0.0	0.0
LnGrp LOS	E	D		E	B	B	D		C	C		
Approach Vol, veh/h		840			536			1679			44	
Approach Delay, s/veh		54.8			37.7			31.9			32.1	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		27.0	17.0	26.0		20.0	5.0	38.0
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		23.0	13.0	22.0		16.0	4.0	31.0
Max Q Clear Time (g_c+I1), s		25.0	13.1	22.8		3.9	2.6	7.3
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	39.1
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	47	0	1594	1196	7
Future Volume (Veh/h)	0	47	0	1594	1196	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	51	0	1733	1300	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					352	
pX, platoon unblocked						
vC, conflicting volume	1733	433	1308			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1733	433	1308			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	100			
cM capacity (veh/h)	79	571	525			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	51	433	433	433	433	433	433	433	8
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	51	0	0	0	0	0	0	0	8
cSH	571	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.09	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.00
Queue Length 95th (ft)	7	0	0	0	0	0	0	0	0
Control Delay (s)	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B								
Approach Delay (s)	11.9	0.0				0.0			
Approach LOS	B								

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	33.1%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	542	0	51	447	0	16
Future Vol, veh/h	542	0	51	447	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	589	0	55	486	0	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	589	0	1185	589
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	596	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	986	-	209	508
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	550	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	986	-	197	508
Mov Cap-2 Maneuver	-	-	-	-	197	-
Stage 1	-	-	-	-	523	-
Stage 2	-	-	-	-	550	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	508	-	-	986	-
HCM Lane V/C Ratio	0.034	-	-	0.056	-
HCM Control Delay (s)	12.3	-	-	8.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	542	13	0	447	14	0
Future Vol, veh/h	542	13	0	447	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	589	14	0	486	15	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	603	0	1082	596
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	486	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	975	-	241	504
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	618	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	975	-	241	504
Mov Cap-2 Maneuver	-	-	-	-	241	-
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	618	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	241	-	-	975	-
HCM Lane V/C Ratio	0.063	-	-	-	-
HCM Control Delay (s)	20.9	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	10717	10554	10651	10609	10531	10613
Vehs Exited	10656	10507	10596	10440	10452	10528
Starting Vehs	494	471	486	428	482	468
Ending Vehs	555	518	541	597	561	548
Travel Distance (mi)	6577	6586	6513	6448	6571	6539
Travel Time (hr)	2317.8	2314.6	2246.2	2277.4	2285.0	2288.2
Total Delay (hr)	2102.9	2099.4	2033.2	2066.3	2070.1	2074.4
Total Stops	14126	13948	14209	14446	13752	14093
Fuel Used (gal)	715.4	714.0	698.7	704.1	705.9	707.6

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by PHF, Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	10717	10554	10651	10609	10531	10613
Vehs Exited	10656	10507	10596	10440	10452	10528
Starting Vehs	494	471	486	428	482	468
Ending Vehs	555	518	541	597	561	548
Travel Distance (mi)	6577	6586	6513	6448	6571	6539
Travel Time (hr)	2317.8	2314.6	2246.2	2277.4	2285.0	2288.2
Total Delay (hr)	2102.9	2099.4	2033.2	2066.3	2070.1	2074.4
Total Stops	14126	13948	14209	14446	13752	14093
Fuel Used (gal)	715.4	714.0	698.7	704.1	705.9	707.6

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Old Tunnel Road	7	110.3	596.0	0.1	4
SR 24 WB On Ramp	6	22.2	28.0	0.1	7
	17	18.9	24.2	0.1	9
	16	1.5	9.6	0.1	26
	15	1.2	9.7	0.1	38
Acalanes Avenue	14	1.5	10.0	0.1	22
Proj. Driveway	11	1.2	6.7	0.1	29
Stanley Boulevard	5	32.8	39.7	0.1	6
School Dwy.	20	3.8	10.0	0.1	22
School Dwy.	19	2.2	14.8	0.1	33
	18	0.4	6.4	0.1	34
	39	0.4	10.0	0.1	33
Quandt Road	4	2.9	13.6	0.1	32
	37	1.0	7.5	0.1	35
Reliez Valle Road	3	1.0	7.4	0.1	35
	58	0.6	8.6	0.1	38
Greenvalley Drive	2	4.7	25.1	0.2	34
	22	1.8	17.4	0.2	36
Rancho View Drive	1	2.9	22.4	0.2	35
Total		211.3	867.0	1.9	18

Arterial Level of Service: SB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Rancho View Drive	1	2.7	19.1	0.2	31
	22	1.6	24.1	0.2	33
Greenvalley Drive	2	2.7	20.6	0.2	30
	58	1.8	26.0	0.2	33
Reliez Valle Road	3	4.2	13.7	0.1	24
	37	1.7	9.0	0.1	29
Springhill Road	4	5.9	13.5	0.1	20
	39	2.0	14.4	0.1	30
	18	1.1	10.5	0.1	31
School Dwy.	19	0.9	6.9	0.1	32
School Dwy.	20	5.4	19.2	0.1	25
Deer Hill Road	5	32.2	37.9	0.1	6
Proj. Driveway	11	2.3	9.4	0.1	25
Acalanes Avenue	14	0.9	6.0	0.1	32
	15	0.5	7.1	0.1	31
	16	2.4	10.5	0.1	35
	17	4.1	12.7	0.1	20
Mt. Diablo Boulevard	6	19.5	25.8	0.1	9
SR 24 EB Off Ramp	7	14.0	20.0	0.1	10
Total		106.0	306.5	2.0	23

Intersection: 1: Pleasant Hill Road & Rancho View Drive

Movement	EB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	T	TR	T	TR
Maximum Queue (ft)	99	22	60	111	131	141	116
Average Queue (ft)	37	2	16	20	34	50	28
95th Queue (ft)	73	13	44	73	98	112	77
Link Distance (ft)	218	57		1092	1092	828	828
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			148				
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 2: Pleasant Hill Road & Greenvalley Drive

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	L	T	T
Maximum Queue (ft)	52	120	94	47	152	145	79	104	141
Average Queue (ft)	13	48	3	7	52	62	29	24	41
95th Queue (ft)	40	98	31	30	116	124	67	71	104
Link Distance (ft)	275	522			1184	1184		848	848
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			75	76			95		
Storage Blk Time (%)		5	0		2	0	0	0	4
Queuing Penalty (veh)		2	0		0	0	1	0	0

Intersection: 3: Pleasant Hill Road & Reliez Valle Road

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	60	18	140	66	88	159	173	39
Average Queue (ft)	21	1	58	9	20	56	66	4
95th Queue (ft)	51	12	107	39	67	122	137	21
Link Distance (ft)	396	396		322	322	430	430	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			230					130
Storage Blk Time (%)							1	
Queuing Penalty (veh)							0	

Intersection: 4: Pleasant Hill Road & Springhill Road/Quandt Road

Movement	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB	B37
Directions Served	LT	LTR	L	T	T	R	L	T	T	R	T
Maximum Queue (ft)	99	102	143	131	152	34	39	233	239	96	8
Average Queue (ft)	40	37	53	36	47	3	7	65	83	9	0
95th Queue (ft)	83	80	105	96	108	19	26	157	179	51	6
Link Distance (ft)	410	125		568	568			318	318		322
Upstream Blk Time (%)		0						0	0		
Queuing Penalty (veh)		0						0	0		
Storage Bay Dist (ft)			200			100	105			71	
Storage Blk Time (%)	1			0	1			2	7	0	
Queuing Penalty (veh)	1			0	0			0	2	0	

Intersection: 5: Pleasant Hill Road & Deer Hill Road/Stanley Boulevard

Movement	EB	EB	EB	B27	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	L	TR	T	L	LT	R	L	T	T	R	L
Maximum Queue (ft)	100	100	200	463	524	551	524	193	358	361	96	200
Average Queue (ft)	81	96	175	402	479	519	370	102	264	273	44	126
95th Queue (ft)	115	106	187	459	604	555	713	175	358	364	81	220
Link Distance (ft)			100	383	505	505	505	280	280	280	280	
Upstream Blk Time (%)	2	21	69	56	24	80	28		7	9		
Queuing Penalty (veh)	0	0	418	337	0	0	0		30	38		
Storage Bay Dist (ft)	101	101										176
Storage Blk Time (%)	2	21	69									14
Queuing Penalty (veh)	4	33	314									45

Intersection: 5: Pleasant Hill Road & Deer Hill Road/Stanley Boulevard

Movement	SB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (ft)	308	293	310	75
Average Queue (ft)	178	198	236	67
95th Queue (ft)	310	280	332	95
Link Distance (ft)	228	228	228	
Upstream Blk Time (%)	8	2	13	
Queuing Penalty (veh)	35	11	58	
Storage Bay Dist (ft)				50
Storage Blk Time (%)	9		40	7
Queuing Penalty (veh)	10		110	23

Intersection: 6: Pleasant Hill Road & Mt. Diablo Boulevard/SR 24 WB On Ramp

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	T	T	R
Maximum Queue (ft)	304	342	344	240	248	253	75	176	165	164
Average Queue (ft)	151	159	200	145	120	188	72	104	102	67
95th Queue (ft)	281	297	328	233	238	285	89	159	164	147
Link Distance (ft)		325	325	234	234	234		150	150	150
Upstream Blk Time (%)	0	3	1	2	3	9		1	1	1
Queuing Penalty (veh)	0	0	0	8	12	44		4	5	2
Storage Bay Dist (ft)	282						50			
Storage Blk Time (%)	5	0				34	13			
Queuing Penalty (veh)	13	1				156	42			

Intersection: 7: Pleasant Hill Road & SR 24 EB Off Ramp/Old Tunnel Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	R	T	T	TR	L	T	T
Maximum Queue (ft)	109	110	47	170	600	622	642	125	219	224
Average Queue (ft)	45	36	14	96	243	532	616	74	105	121
95th Queue (ft)	91	82	39	164	612	802	632	127	184	195
Link Distance (ft)	114	114	145	145	596	596	596		234	234
Upstream Blk Time (%)	0	0		8	1	21	98		0	0
Queuing Penalty (veh)	0	0		0	0	0	0		0	1
Storage Bay Dist (ft)								100		
Storage Blk Time (%)								4	7	
Queuing Penalty (veh)								16	9	

Intersection: 8: Brown Avenue & Deer Hill Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 9: First Street/Sierra Vista Way & Deer Hill Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	TR	L	LT	LTR
Maximum Queue (ft)	80	312	240	160	218	174	72	91
Average Queue (ft)	13	123	156	74	99	86	24	36
95th Queue (ft)	42	269	271	128	175	140	55	73
Link Distance (ft)		305			656	285	285	107
Upstream Blk Time (%)		0						0
Queuing Penalty (veh)		7						0
Storage Bay Dist (ft)	71		215	150				
Storage Blk Time (%)	0	9	6	0	1		0	
Queuing Penalty (veh)	1	131	27	1	2		0	

Intersection: 10: SR 24 WB Ramps/Laurel Drive & Deer Hill Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	TR	L	LT	R	R	LTR
Maximum Queue (ft)	119	293	284	165	196	234	116	303	312	325	326	77
Average Queue (ft)	12	270	269	55	118	43	26	204	286	301	300	29
95th Queue (ft)	69	280	278	183	189	141	77	300	347	316	313	67
Link Distance (ft)		253	253			305	305	282	282	282	282	294
Upstream Blk Time (%)		91	81			0		2	32	98	83	
Queuing Penalty (veh)		0	0			0		0	0	0	0	
Storage Bay Dist (ft)	95			140	175							
Storage Blk Time (%)		93	14	0	4							
Queuing Penalty (veh)		10	44	0	6							

Intersection: 11: Pleasant Hill Road & Proj. Driveway

Movement	EB	NB	NB
Directions Served	R	T	T
Maximum Queue (ft)	64	66	78
Average Queue (ft)	22	5	7
95th Queue (ft)	45	35	40
Link Distance (ft)	163	226	226
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Proj. Driveway & Deer Hill Road

Movement	EB	B38	WB	WB	NB
Directions Served	TR	T	L	T	LR
Maximum Queue (ft)	1161	504	73	28	131
Average Queue (ft)	871	204	17	1	58
95th Queue (ft)	1450	623	55	20	133
Link Distance (ft)	1062	620		383	145
Upstream Blk Time (%)	45	6			5
Queuing Penalty (veh)	264	32			0
Storage Bay Dist (ft)			100		
Storage Blk Time (%)			1		
Queuing Penalty (veh)			3		

Intersection: 13: Proj. Driveway & Deer Hill Road

Movement	EB	NB
Directions Served	TR	LR
Maximum Queue (ft)	284	33
Average Queue (ft)	63	12
95th Queue (ft)	316	35
Link Distance (ft)	936	210
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Pleasant Hill Road & Acalanes Avenue

Movement	WB	NB	SB	SB
Directions Served	R	TR	T	T
Maximum Queue (ft)	67	5	5	15
Average Queue (ft)	26	0	0	1
95th Queue (ft)	53	4	4	8
Link Distance (ft)	167	282	226	226
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: Pleasant Hill Road

Movement	WB	NB	NB
Directions Served	R	T	T
Maximum Queue (ft)	632	40	53
Average Queue (ft)	594	2	12
95th Queue (ft)	613	18	40
Link Distance (ft)	574	244	244
Upstream Blk Time (%)	100		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Pleasant Hill Road

Movement	EB	NB	SB
Directions Served	R	R	T
Maximum Queue (ft)	559	44	149
Average Queue (ft)	522	4	40
95th Queue (ft)	566	24	107
Link Distance (ft)	505	288	244
Upstream Blk Time (%)	97		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: Pleasant Hill Road

Movement	WB	NB	NB	SB	SB	SB
Directions Served	R	T	T	T	T	TR
Maximum Queue (ft)	343	176	185	20	57	118
Average Queue (ft)	139	61	109	1	3	18
95th Queue (ft)	299	172	211	13	28	70
Link Distance (ft)	458	150	150	288	288	288
Upstream Blk Time (%)	1	4	17			
Queuing Penalty (veh)	0	17	76			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 18: Pleasant Hill Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 19: Pleasant Hill Road & School Dwy.

Movement	NB
Directions Served	T
Maximum Queue (ft)	19
Average Queue (ft)	1
95th Queue (ft)	12
Link Distance (ft)	654
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 20: Pleasant Hill Road & School Dwy.

Movement	WB	NB	SB	SB
Directions Served	R	TR	T	T
Maximum Queue (ft)	243	4	173	271
Average Queue (ft)	213	0	22	51
95th Queue (ft)	231	3	105	191
Link Distance (ft)	193	228	654	654
Upstream Blk Time (%)	100			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 2408

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	22	0	0	0	21	2186	0	0	849	20
Future Volume (veh/h)	7	0	22	0	0	0	21	2186	0	0	849	20
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	0	1863	1900
Adj Flow Rate, veh/h	9	0	28	0	0	0	21	2231	0	0	894	21
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.79	0.79	0.79	0.92	0.92	0.92	0.98	0.98	0.98	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	70	0	33	0	53	0	757	3013	0	0	1265	30
Arrive On Green	0.03	0.00	0.03	0.00	0.00	0.00	0.43	0.85	0.00	0.00	0.36	0.36
Sat Flow, veh/h	374	0	1162	0	1863	0	1774	3632	0	0	3628	83
Grp Volume(v), veh/h	37	0	0	0	0	0	21	2231	0	0	448	467
Grp Sat Flow(s),veh/h/ln	1536	0	0	0	1863	0	1774	1770	0	0	1770	1848
Q Serve(g_s), s	1.8	0.0	0.0	0.0	0.0	0.0	0.5	19.0	0.0	0.0	16.3	16.3
Cycle Q Clear(g_c), s	1.8	0.0	0.0	0.0	0.0	0.0	0.5	19.0	0.0	0.0	16.3	16.3
Prop In Lane	0.24		0.76	0.00		0.00	1.00		0.00	0.00		0.04
Lane Grp Cap(c), veh/h	104	0	0	0	53	0	757	3013	0	0	633	661
V/C Ratio(X)	0.36	0.00	0.00	0.00	0.00	0.00	0.03	0.74	0.00	0.00	0.71	0.71
Avail Cap(c_a), veh/h	387	0	0	0	397	0	757	3013	0	0	991	1035
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	0.0	0.0	0.0	0.0	0.0	12.5	2.2	0.0	0.0	20.7	20.7
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	6.5	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.0	0.0	0.0	0.3	9.4	0.0	0.0	9.1	9.5
LnGrp Delay(d),s/veh	37.8	0.0	0.0	0.0	0.0	0.0	12.5	3.9	0.0	0.0	27.2	27.0
LnGrp LOS	D						B	A			C	C
Approach Vol, veh/h		37			0			2252			915	
Approach Delay, s/veh		37.8			0.0			4.0			27.1	
Approach LOS		D						A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		68.9		6.1	37.0	31.8		6.1
Change Period (Y+Rc), s		5.0		4.0	5.0	* 5		4.0
Max Green Setting (Gmax), s		50.0		16.0	4.0	* 42		16.0
Max Q Clear Time (g_c+I1), s		21.0		0.0	2.5	18.3		3.8
Green Ext Time (p_c), s		25.5		0.0	0.0	8.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	3	14	0	18	3	2136	24	13	828	5
Future Volume (veh/h)	8	0	3	14	0	18	3	2136	24	13	828	5
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	13	0	5	16	0	0	3	2180	0	13	854	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.63	0.63	0.63	0.88	0.88	0.88	0.98	0.98	0.98	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	0	11	110	0	39	6	2950	1320	22	2981	1334
Arrive On Green	0.02	0.00	0.02	0.02	0.00	0.00	0.00	0.83	0.00	0.01	0.84	0.00
Sat Flow, veh/h	1139	0	438	1558	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	18	0	0	16	0	0	3	2180	0	13	854	0
Grp Sat Flow(s),veh/h/ln	1577	0	0	1558	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	0.0	0.2	26.7	0.0	0.7	5.0	0.0
Cycle Q Clear(g_c), s	1.0	0.0	0.0	0.9	0.0	0.0	0.2	26.7	0.0	0.7	5.0	0.0
Prop In Lane	0.72		0.28	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	101	0	0	110	0	39	6	2950	1320	22	2981	1334
V/C Ratio(X)	0.18	0.00	0.00	0.15	0.00	0.00	0.53	0.74	0.00	0.60	0.29	0.00
Avail Cap(c_a), veh/h	442	0	0	441	0	412	71	2950	1320	71	2981	1334
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.1	0.0	0.0	48.0	0.0	0.0	49.8	3.6	0.0	49.2	1.6	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.2	0.0	0.0	25.5	1.7	0.0	9.7	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.4	0.0	0.0	0.1	13.1	0.0	0.4	2.5	0.0
LnGrp Delay(d),s/veh	48.7	0.0	0.0	48.2	0.0	0.0	75.3	5.3	0.0	58.9	1.9	0.0
LnGrp LOS	D			D			E	A		E	A	
Approach Vol, veh/h		18			16			2183			867	
Approach Delay, s/veh		48.7			48.2			5.4			2.7	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	88.3		6.4	4.3	89.2		6.4
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	4.6	57.0		26.0	4.0	57.0		26.0
Max Q Clear Time (g_c+I1), s	2.7	28.7		2.9	2.2	7.0		3.0
Green Ext Time (p_c), s	0.0	24.6		0.0	0.0	10.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	5.1
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	118	209	2147	842	30
Future Volume (veh/h)	23	118	209	2147	842	30
Number	3	18	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	26	0	220	2260	936	33
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.88	0.88	0.95	0.95	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	38	34	257	3110	2441	1092
Arrive On Green	0.02	0.00	0.14	0.88	0.69	0.69
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	26	0	220	2260	936	33
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	1.3	0.0	10.9	19.3	10.0	0.6
Cycle Q Clear(g_c), s	1.3	0.0	10.9	19.3	10.0	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	38	34	257	3110	2441	1092
V/C Ratio(X)	0.69	0.00	0.86	0.73	0.38	0.03
Avail Cap(c_a), veh/h	453	405	394	3110	2441	1092
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.50	0.50	1.00	1.00
Uniform Delay (d), s/veh	43.7	0.0	37.6	1.8	5.9	4.4
Incr Delay (d2), s/veh	15.3	0.0	3.7	0.8	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	5.6	9.1	5.0	0.3
LnGrp Delay(d),s/veh	59.1	0.0	41.3	2.6	6.3	4.5
LnGrp LOS	E		D	A	A	A
Approach Vol, veh/h	26			2480	969	
Approach Delay, s/veh	59.1			6.0	6.3	
Approach LOS	E			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		84.1			17.0	67.1		5.9
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0
Max Green Setting (Gmax), s		58.0			20.0	34.0		23.0
Max Q Clear Time (g_c+I1), s		21.3			12.9	12.0		3.3
Green Ext Time (p_c), s		31.7			0.2	9.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	6.5
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	2	100	25	0	7	141	2323	38	16	989	28
Future Volume (veh/h)	22	2	100	25	0	7	141	2323	38	16	989	28
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1863	1520	1520	1520
Adj Flow Rate, veh/h	27	2	0	32	0	9	147	2420	40	17	1052	30
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.81	0.81	0.81	0.78	0.78	0.78	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	5	59	95	0	13	172	3056	1367	20	2255	1009
Arrive On Green	0.04	0.04	0.00	0.04	0.00	0.04	0.10	0.86	0.86	0.01	0.78	0.78
Sat Flow, veh/h	1534	123	1583	1244	0	350	1774	3539	1583	1447	2887	1292
Grp Volume(v), veh/h	29	0	0	41	0	0	147	2420	40	17	1052	30
Grp Sat Flow(s),veh/h/ln	1657	0	1583	1594	0	0	1774	1770	1583	1447	1444	1292
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	0.0	10.6	38.4	0.5	1.5	16.3	0.7
Cycle Q Clear(g_c), s	2.1	0.0	0.0	3.1	0.0	0.0	10.6	38.4	0.5	1.5	16.3	0.7
Prop In Lane	0.93		1.00	0.78		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	115	0	59	108	0	0	172	3056	1367	20	2255	1009
V/C Ratio(X)	0.25	0.00	0.00	0.38	0.00	0.00	0.86	0.79	0.03	0.83	0.47	0.03
Avail Cap(c_a), veh/h	336	0	304	333	0	0	252	3056	1367	50	2255	1009
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.89	0.89	0.89
Uniform Delay (d), s/veh	61.3	0.0	0.0	61.7	0.0	0.0	57.8	3.8	1.2	63.9	4.9	3.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.8	0.0	0.0	12.2	2.2	0.0	23.7	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	1.5	0.0	0.0	5.8	19.1	0.2	0.7	6.6	0.3
LnGrp Delay(d),s/veh	61.7	0.0	0.0	62.5	0.0	0.0	70.0	6.0	1.3	87.7	5.5	3.2
LnGrp LOS	E			E			E	A	A	F	A	A
Approach Vol, veh/h		29			41			2607			1099	
Approach Delay, s/veh		61.7			62.5			9.6			6.7	
Approach LOS		E			E			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	116.4		8.3	16.1	105.6		8.3
Change Period (Y+Rc), s	3.5	4.1		3.5	3.5	4.1		3.5
Max Green Setting (Gmax), s	4.5	89.4		25.0	18.5	75.4		25.0
Max Q Clear Time (g_c+I1), s	2.5	40.4		5.1	12.6	18.3		4.1
Green Ext Time (p_c), s	0.0	43.0		0.1	0.0	15.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.7
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	748	108	59	214	84	172	122	1617	210	122	743	217
Future Volume (veh/h)	748	108	59	214	84	172	122	1617	210	122	743	217
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.92	1.00		0.92
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1471	1471	1471
Adj Flow Rate, veh/h	787	114	62	178	208	205	126	1667	216	136	826	241
Adj No. of Lanes	2	1	0	1	1	1	1	2	1	1	3	1
Peak Hour Factor	0.95	0.95	0.95	0.84	0.84	0.84	0.97	0.97	0.97	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	688	227	123	260	273	231	149	1578	670	106	1817	519
Arrive On Green	0.20	0.20	0.20	0.15	0.15	0.15	0.08	0.46	0.46	0.08	0.45	0.45
Sat Flow, veh/h	3442	1135	617	1774	1863	1577	1774	3427	1456	1401	4015	1148
Grp Volume(v), veh/h	787	0	176	178	208	205	126	1667	216	136	826	241
Grp Sat Flow(s),veh/h/ln	1721	0	1752	1774	1863	1577	1774	1714	1456	1401	1338	1148
Q Serve(g_s), s	29.0	0.0	13.0	13.8	15.6	18.5	10.2	66.8	13.6	11.0	20.6	21.1
Cycle Q Clear(g_c), s	29.0	0.0	13.0	13.8	15.6	18.5	10.2	66.8	13.6	11.0	20.6	21.1
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	688	0	350	260	273	231	149	1578	670	106	1817	519
V/C Ratio(X)	1.14	0.00	0.50	0.69	0.76	0.89	0.85	1.06	0.32	1.28	0.45	0.46
Avail Cap(c_a), veh/h	688	0	350	306	321	272	220	1578	670	106	1817	519
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.0	0.0	51.6	58.7	59.5	60.7	65.5	39.1	24.8	67.0	27.4	27.5
Incr Delay (d2), s/veh	81.1	0.0	0.4	3.4	7.0	23.1	12.2	39.2	1.3	180.2	0.8	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.5	0.0	6.3	7.0	8.6	9.6	5.5	40.1	5.7	9.6	7.7	7.1
LnGrp Delay(d),s/veh	139.1	0.0	52.0	62.1	66.5	83.9	77.7	78.3	26.1	247.2	28.2	30.5
LnGrp LOS	F		D	E	E	F	E	F	C	F	C	C
Approach Vol, veh/h		963			591			2009			1203	
Approach Delay, s/veh		123.2			71.2			72.6			53.4	
Approach LOS		F			E			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	71.8		25.2	16.2	70.6		33.0
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	11.0	63.0		25.0	18.0	56.0		29.0
Max Q Clear Time (g_c+I1), s	13.0	68.8		20.5	12.2	23.1		31.0
Green Ext Time (p_c), s	0.0	0.0		0.7	0.1	11.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	77.8
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	494	269	0	0	0	238	581	266	0	627	464
Future Volume (veh/h)	226	494	269	0	0	0	238	581	266	0	627	464
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				1863	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	248	543	296				248	605	277	0	667	0
Adj No. of Lanes	1	2	0				1	2	1	0	2	1
Peak Hour Factor	0.91	0.91	0.91				0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				2	2	2	0	2	2
Cap, veh/h	536	669	364				191	1952	873	0	1353	605
Arrive On Green	0.30	0.30	0.30				0.11	0.55	0.55	0.00	0.38	0.00
Sat Flow, veh/h	1774	2215	1205				1774	3539	1583	0	3632	1583
Grp Volume(v), veh/h	248	434	405				248	605	277	0	667	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1650				1774	1770	1583	0	1770	1583
Q Serve(g_s), s	7.4	14.7	14.8				7.0	6.0	6.2	0.0	9.3	0.0
Cycle Q Clear(g_c), s	7.4	14.7	14.8				7.0	6.0	6.2	0.0	9.3	0.0
Prop In Lane	1.00		0.73				1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	536	535	499				191	1952	873	0	1353	605
V/C Ratio(X)	0.46	0.81	0.81				1.30	0.31	0.32	0.00	0.49	0.00
Avail Cap(c_a), veh/h	696	694	647				191	1952	873	0	1353	605
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.73	0.73	0.73	0.00	1.00	0.00
Uniform Delay (d), s/veh	18.4	21.0	21.0				29.0	7.9	7.9	0.0	15.3	0.0
Incr Delay (d2), s/veh	0.2	4.3	4.6				159.4	0.3	0.7	0.0	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	7.7	7.3				11.9	3.0	2.9	0.0	4.8	0.0
LnGrp Delay(d),s/veh	18.6	25.2	25.6				188.4	8.2	8.6	0.0	16.6	0.0
LnGrp LOS	B	C	C				F	A	A		B	
Approach Vol, veh/h		1087						1130			667	
Approach Delay, s/veh		23.9						47.8			16.6	
Approach LOS		C						D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		40.9		24.1	11.0	29.9		
Change Period (Y+Rc), s		5.0		4.5	4.0	5.0		
Max Green Setting (Gmax), s		30.0		25.5	7.0	19.0		
Max Q Clear Time (g_c+I1), s		8.2		16.8	9.0	11.3		
Green Ext Time (p_c), s		7.2		2.9	0.0	3.3		

Intersection Summary		
HCM 2010 Ctrl Delay		31.6
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	56	304	30	0	184	0	869	27	122	774	0
Future Volume (veh/h)	62	56	304	30	0	184	0	869	27	122	774	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	0	1863	0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	68	62	334	35	0	214	0	887	28	134	851	0
Adj No. of Lanes	0	1	1	1	0	1	0	3	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.86	0.86	0.86	0.98	0.98	0.98	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	264	241	440	0	0	0	0	1528	48	171	1791	0
Arrive On Green	0.28	0.28	0.28	0.00	0.00	0.00	0.00	0.30	0.30	0.10	0.51	0.00
Sat Flow, veh/h	950	866	1583		0		0	5233	160	1774	3632	0
Grp Volume(v), veh/h	130	0	334		0.0		0	593	322	134	851	0
Grp Sat Flow(s),veh/h/ln	1815	0	1583				0	1695	1835	1774	1770	0
Q Serve(g_s), s	2.1	0.0	7.1				0.0	5.5	5.5	2.7	5.8	0.0
Cycle Q Clear(g_c), s	2.1	0.0	7.1				0.0	5.5	5.5	2.7	5.8	0.0
Prop In Lane	0.52		1.00				0.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	504	0	440				0	1023	553	171	1791	0
V/C Ratio(X)	0.26	0.00	0.76				0.00	0.58	0.58	0.78	0.48	0.00
Avail Cap(c_a), veh/h	784	0	684				0	1465	793	287	2485	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.4	0.0	12.2				0.0	10.9	10.9	16.4	5.9	0.0
Incr Delay (d2), s/veh	0.3	0.0	2.7				0.0	0.5	1.0	7.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	3.4				0.0	2.6	2.9	1.7	2.8	0.0
LnGrp Delay(d),s/veh	10.7	0.0	15.0				0.0	11.5	11.9	24.0	6.1	0.0
LnGrp LOS	B		B					B	B	C	A	
Approach Vol, veh/h		464						915			985	
Approach Delay, s/veh		13.8						11.6			8.6	
Approach LOS		B						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		14.3		22.7			7.6	15.2
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0
Max Green Setting (Gmax), s		16.0		26.0			6.0	16.0
Max Q Clear Time (g_c+I1), s		9.1		7.8			4.7	7.5
Green Ext Time (p_c), s		1.1		5.6			0.0	3.7

Intersection Summary		
HCM 2010 Ctrl Delay		10.8
HCM 2010 LOS		B

Intersection	
Int Delay, s/veh	74.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	725	56	119	347	98	65	9	123	70	14	22
Future Vol, veh/h	53	725	56	119	347	98	65	9	123	70	14	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	98	98	98	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	806	62	127	369	104	66	9	126	82	16	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	473	0	0	868	0	0	1651	1682	837	1698	1661	421
Stage 1	-	-	-	-	-	-	955	955	-	675	675	-
Stage 2	-	-	-	-	-	-	696	727	-	1023	986	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1089	-	-	776	-	-	79	94	367	~ 73	97	632
Stage 1	-	-	-	-	-	-	310	337	-	444	453	-
Stage 2	-	-	-	-	-	-	432	429	-	284	326	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1089	-	-	776	-	-	~ 53	74	367	~ 37	77	632
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 53	74	-	~ 37	77	-
Stage 1	-	-	-	-	-	-	293	319	-	420	379	-
Stage 2	-	-	-	-	-	-	331	359	-	172	308	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	2.2	152.2	$ 853.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	55	367	1089	-	-	776	-	-	50
HCM Lane V/C Ratio	1.373	0.342	0.054	-	-	0.163	-	-	2.494
HCM Control Delay (s)	$ 372.3	19.8	8.5	-	-	10.5	-	-	$ 853.4
HCM Lane LOS	F	C	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	6.8	1.5	0.2	-	-	0.6	-	-	12.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	681	1549	106	286	2	198	17	139	6	29	11
Future Volume (veh/h)	25	681	1549	106	286	2	198	17	139	6	29	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	27	740	0	115	311	2	228	0	0	7	32	12
Adj No. of Lanes	1	1	1	1	1	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	866	736	147	968	6	374	0	167	17	77	29
Arrive On Green	0.02	0.46	0.00	0.08	0.52	0.52	0.11	0.00	0.00	0.07	0.07	0.07
Sat Flow, veh/h	1774	1863	1583	1774	1849	12	3548	0	1583	244	1115	418
Grp Volume(v), veh/h	27	740	0	115	0	313	228	0	0	51	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1861	1774	0	1583	1777	0	0
Q Serve(g_s), s	0.9	20.3	0.0	3.7	0.0	5.6	3.5	0.0	0.0	1.6	0.0	0.0
Cycle Q Clear(g_c), s	0.9	20.3	0.0	3.7	0.0	5.6	3.5	0.0	0.0	1.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.14		0.24
Lane Grp Cap(c), veh/h	43	866	736	147	0	974	374	0	167	123	0	0
V/C Ratio(X)	0.62	0.85	0.00	0.78	0.00	0.32	0.61	0.00	0.00	0.41	0.00	0.00
Avail Cap(c_a), veh/h	154	1163	988	185	0	1194	984	0	439	493	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.9	13.7	0.0	25.9	0.0	7.9	24.7	0.0	0.0	25.7	0.0	0.0
Incr Delay (d2), s/veh	13.9	4.9	0.0	15.6	0.0	0.2	1.6	0.0	0.0	2.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	11.5	0.0	2.4	0.0	2.8	1.8	0.0	0.0	0.9	0.0	0.0
LnGrp Delay(d),s/veh	41.7	18.6	0.0	41.5	0.0	8.1	26.3	0.0	0.0	27.9	0.0	0.0
LnGrp LOS	D	B		D		A	C			C		
Approach Vol, veh/h		767			428			228			51	
Approach Delay, s/veh		19.4			17.1			26.3			27.9	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		10.1	8.8	30.8		8.0	5.4	34.2
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		16.0	6.0	36.0		16.0	5.0	37.0
Max Q Clear Time (g_c+I1), s		5.5	5.7	22.3		3.6	2.9	7.6
Green Ext Time (p_c), s		0.5	0.0	4.5		0.1	0.0	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.1
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

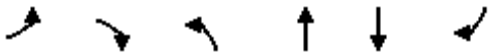
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1337	296	210	274	4	609	7	936	23	1	11
Future Volume (veh/h)	20	1337	296	210	274	4	609	7	936	23	1	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	22	1453	0	228	298	4	668	0	1017	25	1	12
Adj No. of Lanes	1	2	1	1	2	0	2	0	2	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	1384	619	226	1789	24	677	0	1008	164	7	79
Arrive On Green	0.02	0.39	0.00	0.13	0.50	0.50	0.19	0.00	0.19	0.15	0.15	0.15
Sat Flow, veh/h	1774	3539	1583	1774	3576	48	3548	0	3167	1126	45	540
Grp Volume(v), veh/h	22	1453	0	228	147	155	668	0	1017	38	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1854	1774	0	1583	1711	0	0
Q Serve(g_s), s	1.4	43.0	0.0	14.0	5.0	5.0	20.6	0.0	21.0	2.1	0.0	0.0
Cycle Q Clear(g_c), s	1.4	43.0	0.0	14.0	5.0	5.0	20.6	0.0	21.0	2.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.66		0.32
Lane Grp Cap(c), veh/h	32	1384	619	226	885	928	677	0	1008	249	0	0
V/C Ratio(X)	0.70	1.05	0.00	1.01	0.17	0.17	0.99	0.00	1.01	0.15	0.00	0.00
Avail Cap(c_a), veh/h	81	1384	619	226	885	928	677	0	1008	249	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.7	33.5	0.0	48.0	15.0	15.0	44.4	0.0	37.5	41.1	0.0	0.0
Incr Delay (d2), s/veh	24.1	38.6	0.0	62.4	0.1	0.1	31.4	0.0	30.7	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	28.4	0.0	10.8	2.4	2.6	13.1	0.0	19.5	1.1	0.0	0.0
LnGrp Delay(d),s/veh	77.8	72.1	0.0	110.5	15.1	15.1	75.7	0.0	68.2	42.4	0.0	0.0
LnGrp LOS	E	F		F	B	B	E		F	D		
Approach Vol, veh/h		1475			530			1685			38	
Approach Delay, s/veh		72.1			56.1			71.2			42.4	
Approach LOS		E			E			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		25.0	18.0	47.0		20.0	6.0	59.0
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		21.0	14.0	43.0		16.0	5.0	52.0
Max Q Clear Time (g_c+I1), s		23.0	16.0	45.0		4.1	3.4	7.0
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	69.1
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	33	0	1998	1048	11
Future Volume (Veh/h)	0	33	0	1998	1048	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	36	0	2172	1139	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					352	
pX, platoon unblocked	0.86	0.86	0.86			
vC, conflicting volume	1682	380	1151			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1238	0	624			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	100			
cM capacity (veh/h)	145	937	824			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	36	543	543	543	543	380	380	380	12
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	36	0	0	0	0	0	0	0	12
cSH	937	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.04	0.32	0.32	0.32	0.32	0.22	0.22	0.22	0.01
Queue Length 95th (ft)	3	0	0	0	0	0	0	0	0
Control Delay (s)	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A								
Approach Delay (s)	9.0	0.0				0.0			
Approach LOS	A								

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	32.3%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	896	0	92	346	0	22
Future Vol, veh/h	896	0	92	346	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	974	0	100	376	0	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	974	0	1550	974
Stage 1	-	-	-	-	974	-
Stage 2	-	-	-	-	576	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	708	-	125	306
Stage 1	-	-	-	-	366	-
Stage 2	-	-	-	-	562	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	708	-	107	306
Mov Cap-2 Maneuver	-	-	-	-	107	-
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	562	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	17.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	306	-	-	708	-
HCM Lane V/C Ratio	0.078	-	-	0.141	-
HCM Control Delay (s)	17.8	-	-	10.9	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	896	22	0	346	12	0
Future Vol, veh/h	896	22	0	346	12	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	974	24	0	376	13	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	998	0	1362	986
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	376	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	693	-	163	301
Stage 1	-	-	-	-	361	-
Stage 2	-	-	-	-	694	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	693	-	163	301
Mov Cap-2 Maneuver	-	-	-	-	163	-
Stage 1	-	-	-	-	361	-
Stage 2	-	-	-	-	694	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	29
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	163	-	-	693	-
HCM Lane V/C Ratio	0.08	-	-	-	-
HCM Control Delay (s)	29	-	-	0	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	725	56	119	347	98	65	9	123	70	14	22
Future Volume (veh/h)	53	725	56	119	347	98	65	9	123	70	14	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	59	806	62	127	369	104	66	9	126	82	16	26
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.98	0.98	0.98	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	651	1092	84	384	894	252	388	42	249	261	49	42
Arrive On Green	0.64	0.64	0.64	0.64	0.64	0.64	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	917	1708	131	635	1399	394	1371	269	1583	694	313	267
Grp Volume(v), veh/h	59	0	868	127	0	473	75	0	126	124	0	0
Grp Sat Flow(s),veh/h/ln	917	0	1840	635	0	1793	1640	0	1583	1274	0	0
Q Serve(g_s), s	1.3	0.0	12.7	6.7	0.0	5.1	0.0	0.0	2.9	2.3	0.0	0.0
Cycle Q Clear(g_c), s	6.4	0.0	12.7	19.4	0.0	5.1	1.4	0.0	2.9	3.8	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.22	0.88		1.00	0.66		0.21
Lane Grp Cap(c), veh/h	651	0	1176	384	0	1146	430	0	249	353	0	0
V/C Ratio(X)	0.09	0.00	0.74	0.33	0.00	0.41	0.17	0.00	0.51	0.35	0.00	0.00
Avail Cap(c_a), veh/h	905	0	1685	560	0	1643	781	0	645	694	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.0	0.0	4.8	11.5	0.0	3.5	14.6	0.0	15.2	15.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	1.0	0.5	0.0	0.2	0.2	0.0	1.6	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	6.4	1.2	0.0	2.4	0.7	0.0	1.3	1.3	0.0	0.0
LnGrp Delay(d),s/veh	5.1	0.0	5.9	12.0	0.0	3.7	14.7	0.0	16.7	16.2	0.0	0.0
LnGrp LOS	A		A	B		A	B		B	B		
Approach Vol, veh/h		927			600			201			124	
Approach Delay, s/veh		5.8			5.5			16.0			16.2	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		10.2		29.1		10.2		29.1
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		36.0		16.0		36.0
Max Q Clear Time (g_c+I1), s		4.9		14.7		5.8		21.4
Green Ext Time (p_c), s		0.6		7.4		0.4		3.7

Intersection Summary	
HCM 2010 Ctrl Delay	7.5
HCM 2010 LOS	A

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	8822	5777	8830	9018	9331	8353
Vehs Exited	8184	4591	8392	8328	9005	7697
Starting Vehs	512	499	476	543	472	494
Ending Vehs	1150	1685	914	1233	798	1148
Travel Distance (mi)	6838	3264	7383	7109	7659	6451
Travel Time (hr)	2757.7	3654.4	2505.3	2711.4	2211.4	2768.1
Total Delay (hr)	2537.0	3545.6	2268.3	2482.1	1965.4	2559.7
Total Stops	14465	7537	16675	15186	13934	13558
Fuel Used (gal)	811.7	921.7	769.1	806.3	710.5	803.9

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	8822	5777	8830	9018	9331	8353
Vehs Exited	8184	4591	8392	8328	9005	7697
Starting Vehs	512	499	476	543	472	494
Ending Vehs	1150	1685	914	1233	798	1148
Travel Distance (mi)	6838	3264	7383	7109	7659	6451
Travel Time (hr)	2757.7	3654.4	2505.3	2711.4	2211.4	2768.1
Total Delay (hr)	2537.0	3545.6	2268.3	2482.1	1965.4	2559.7
Total Stops	14465	7537	16675	15186	13934	13558
Fuel Used (gal)	811.7	921.7	769.1	806.3	710.5	803.9

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Old Tunnel Road	7	291.7	2359.6	0.1	1
SR 24 WB On Ramp	6	94.4	100.0	0.1	2
	17	60.1	116.6	0.1	4
	16	25.1	38.8	0.1	8
	15	22.3	30.9	0.1	12
Acalanes Avenue	14	34.8	43.3	0.1	5
Proj. Driveway	11	19.5	24.9	0.1	8
Stanley Boulevard	5	42.0	48.4	0.1	5
School Dwy.	20	3.7	9.8	0.1	22
School Dwy.	19	1.8	15.7	0.1	31
	18	0.6	6.9	0.1	32
	39	1.0	10.6	0.1	31
Quandt Road	4	5.0	15.8	0.1	27
Reliez Valle Road	3	3.5	16.4	0.1	32
	58	1.0	9.0	0.1	36
Greenvalley Drive	2	3.1	24.0	0.2	35
	22	1.6	17.2	0.2	36
Rancho View Drive	1	2.8	22.1	0.2	36
Total		613.8	2910.1	1.9	9

Arterial Level of Service: SB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Rancho View Drive	1	13.4	37.9	0.2	20
	22	22.3	44.6	0.2	18
Greenvalley Drive	2	34.0	51.1	0.2	12
	58	85.6	108.9	0.2	8
Reliez Valle Road	3	56.3	87.1	0.1	5
Springhill Road	4	85.7	107.9	0.1	5
	39	78.9	90.8	0.1	5
	18	78.0	89.0	0.1	4
School Dwy.	19	43.3	49.5	0.1	4
School Dwy.	20	123.6	137.4	0.1	4
Deer Hill Road	5	59.0	81.3	0.1	3
Proj. Driveway	11	1.8	9.0	0.1	27
Acalanes Avenue	14	0.5	6.0	0.1	32
	15	0.4	7.0	0.1	32
	16	2.8	11.2	0.1	33
	17	3.6	12.2	0.1	20
Mt. Diablo Boulevard	6	15.8	21.9	0.1	10
SR 24 EB Off Ramp	7	19.1	25.4	0.1	8
Total		724.1	978.3	2.0	8

Intersection: 1: Pleasant Hill Road & Rancho View Drive

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LTR	L	T	TR	T	TR
Maximum Queue (ft)	90	53	92	106	269	262
Average Queue (ft)	30	14	16	20	70	54
95th Queue (ft)	77	41	61	72	328	311
Link Distance (ft)	311		1096	1096	830	830
Upstream Blk Time (%)					3	3
Queuing Penalty (veh)					0	0
Storage Bay Dist (ft)		148				
Storage Blk Time (%)			0			
Queuing Penalty (veh)			0			

Intersection: 2: Pleasant Hill Road & Greenvalley Drive

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB	B22	B22
Directions Served	LTR	LT	R	L	T	T	L	T	T	R	T	T
Maximum Queue (ft)	48	86	11	32	112	136	46	485	498	14	219	219
Average Queue (ft)	13	21	0	2	24	31	7	106	113	0	61	61
95th Queue (ft)	38	80	8	15	80	95	30	520	527	10	462	462
Link Distance (ft)	468	522			1186	1186		846	846		1096	1096
Upstream Blk Time (%)								6	6		4	4
Queuing Penalty (veh)								29	29		20	19
Storage Bay Dist (ft)			75	76			95			50		
Storage Blk Time (%)		6			1	0		13	14			
Queuing Penalty (veh)		1			0	0		2	1			

Intersection: 3: Pleasant Hill Road & Reliez Valle Road

Movement	EB	EB	NB	NB	NB	SB	SB	SB	B58	B58
Directions Served	L	R	L	T	T	T	T	R	T	T
Maximum Queue (ft)	64	315	204	117	137	430	438	130	769	761
Average Queue (ft)	18	92	85	20	26	179	196	14	223	226
95th Queue (ft)	48	392	165	79	92	495	511	75	955	959
Link Distance (ft)	600	600		696	696	429	429		1186	1186
Upstream Blk Time (%)		7				23	24		12	12
Queuing Penalty (veh)		0				101	103		52	52
Storage Bay Dist (ft)			230					130		
Storage Blk Time (%)			0				28	0		
Queuing Penalty (veh)			2				9	0		

Intersection: 4: Pleasant Hill Road & Springhill Road/Quandt Road

Movement	EB	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LTR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	472	86	223	204	228	214	72	90	617	658	80
Average Queue (ft)	169	18	79	77	63	70	4	17	286	312	9
95th Queue (ft)	540	87	265	169	187	200	35	63	782	840	50
Link Distance (ft)	624		506		570	570			696	696	
Upstream Blk Time (%)	11		3						24	28	
Queuing Penalty (veh)	0		0						126	149	
Storage Bay Dist (ft)		100		200			100	105			71
Storage Blk Time (%)	27	0		1	1	4			36	38	0
Queuing Penalty (veh)	33	0		11	1	1			6	11	0

Intersection: 5: Pleasant Hill Road & Deer Hill Road/Stanley Boulevard

Movement	EB	EB	EB	B27	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	L	TR	T	L	LT	R	L	T	T	R	L
Maximum Queue (ft)	113	125	352	308	210	523	395	266	305	308	98	201
Average Queue (ft)	103	122	334	269	62	423	223	164	257	260	31	166
95th Queue (ft)	128	128	355	380	206	618	569	326	332	333	73	253
Link Distance (ft)			254	211		504	504	278	278	278	278	
Upstream Blk Time (%)			71	68		57	20	30	23	24		
Queuing Penalty (veh)			709	676		0	0	161	127	132		
Storage Bay Dist (ft)	101	101			185							176
Storage Blk Time (%)	15	70	4		0	76						60
Queuing Penalty (veh)	26	124	30		0	96						164

Intersection: 5: Pleasant Hill Road & Deer Hill Road/Stanley Boulevard

Movement	SB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (ft)	280	252	269	75
Average Queue (ft)	195	191	212	53
95th Queue (ft)	345	299	283	101
Link Distance (ft)	229	229	229	
Upstream Blk Time (%)	43	21	35	
Queuing Penalty (veh)	169	81	137	
Storage Bay Dist (ft)				50
Storage Blk Time (%)	25		33	39
Queuing Penalty (veh)	33		79	106

Intersection: 6: Pleasant Hill Road & Mt. Diablo Boulevard/SR 24 WB On Ramp

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	T	T	R
Maximum Queue (ft)	307	360	353	252	266	274	75	158	174	98
Average Queue (ft)	273	291	201	117	155	239	42	88	93	22
95th Queue (ft)	364	459	438	272	301	283	101	148	154	76
Link Distance (ft)		325	325	238	238	238		150	150	150
Upstream Blk Time (%)	0	55	15	6	15	61		1	1	
Queuing Penalty (veh)	0	0	0	25	58	237		2	3	
Storage Bay Dist (ft)	282						50			
Storage Blk Time (%)	59	3				80	3			
Queuing Penalty (veh)	161	8				220	10			

Intersection: 7: Pleasant Hill Road & SR 24 EB Off Ramp/Old Tunnel Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	R	T	T	TR	L	T	T
Maximum Queue (ft)	418	394	374	466	521	593	631	124	242	235
Average Queue (ft)	260	171	218	389	188	429	585	73	115	126
95th Queue (ft)	520	427	565	570	545	748	699	132	212	217
Link Distance (ft)	441	441	436	436	590	590	590		238	238
Upstream Blk Time (%)	22	16	32	66	4	22	90		0	0
Queuing Penalty (veh)	0	0	0	0	0	0	0		2	1
Storage Bay Dist (ft)								100		
Storage Blk Time (%)								5	10	
Queuing Penalty (veh)								19	13	

Intersection: 8: Brown Avenue & Deer Hill Road

Movement	EB	EB	B29	WB	WB	NB	NB	SB
Directions Served	L	TR	T	L	TR	LT	R	LTR
Maximum Queue (ft)	40	243	140	62	86	92	218	244
Average Queue (ft)	8	115	58	21	3	36	90	100
95th Queue (ft)	29	668	368	50	37	73	289	268
Link Distance (ft)		1076	656		1893	486	486	386
Upstream Blk Time (%)		9	8				7	8
Queuing Penalty (veh)		79	68				0	0
Storage Bay Dist (ft)	50			50				
Storage Blk Time (%)	0	11		1	0			
Queuing Penalty (veh)	0	6		6	0			

Intersection: 9: First Street/Sierra Vista Way & Deer Hill Road

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	R	L	TR	L	LT	R	LTR
Maximum Queue (ft)	84	329	237	133	195	156	102	24	98
Average Queue (ft)	10	137	100	50	69	72	36	9	33
95th Queue (ft)	40	281	235	98	137	133	147	61	78
Link Distance (ft)		325			656	285	285		107
Upstream Blk Time (%)		7					6		3
Queuing Penalty (veh)		186					0		0
Storage Bay Dist (ft)	71		215	150				120	
Storage Blk Time (%)	0	20	2	0	1			7	
Queuing Penalty (veh)	0	345	14	0	1			9	

Intersection: 10: SR 24 WB Ramps/Laurel Drive & Deer Hill Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	TR	L	LT	R	R	LTR
Maximum Queue (ft)	120	505	498	165	198	256	199	308	308	338	332	136
Average Queue (ft)	21	480	480	68	126	51	33	193	279	303	293	40
95th Queue (ft)	89	492	492	201	213	168	103	321	347	320	349	119
Link Distance (ft)		463	463			325	325	285	285	285	285	294
Upstream Blk Time (%)		93	78			0		2	29	98	79	
Queuing Penalty (veh)		0	0			0		0	0	0	0	
Storage Bay Dist (ft)	95			140	175							
Storage Blk Time (%)	0	90	28	0	8							
Queuing Penalty (veh)	0	20	90	1	12							

Intersection: 11: Pleasant Hill Road & Proj. Driveway

Movement	EB	NB	NB	NB	NB
Directions Served	R	T	T	T	T
Maximum Queue (ft)	39	195	235	232	62
Average Queue (ft)	14	66	96	96	32
95th Queue (ft)	32	227	248	252	161
Link Distance (ft)	292	224	224	224	224
Upstream Blk Time (%)		18	15	15	14
Queuing Penalty (veh)		104	86	86	78
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 12: Proj. Driveway & Deer Hill Road

Movement	EB	B38	WB	WB	B27	NB
Directions Served	TR	T	L	T	T	LR
Maximum Queue (ft)	1115	508	124	311	316	163
Average Queue (ft)	784	277	103	205	187	107
95th Queue (ft)	1465	776	161	415	403	199
Link Distance (ft)	1058	621		211	254	163
Upstream Blk Time (%)	45	21		65	54	53
Queuing Penalty (veh)	439	205		304	253	0
Storage Bay Dist (ft)			100			
Storage Blk Time (%)			74	0		
Queuing Penalty (veh)			279	0		

Intersection: 13: Proj. Driveway & Deer Hill Road

Movement	EB	B28	NB
Directions Served	TR	T	LR
Maximum Queue (ft)	806	596	38
Average Queue (ft)	301	262	10
95th Queue (ft)	1002	1275	34
Link Distance (ft)	936	1893	275
Upstream Blk Time (%)	18	11	
Queuing Penalty (veh)	186	108	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Pleasant Hill Road & Acalanes Avenue

Movement	WB	NB	NB	NB
Directions Served	R	T	T	TR
Maximum Queue (ft)	79	290	326	351
Average Queue (ft)	24	105	107	100
95th Queue (ft)	91	375	405	396
Link Distance (ft)	470	285	285	285
Upstream Blk Time (%)		21	21	16
Queuing Penalty (veh)		162	160	120
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: Pleasant Hill Road

Movement	WB	NB	NB	NB
Directions Served	R	T	T	T
Maximum Queue (ft)	618	145	161	162
Average Queue (ft)	589	57	55	60
95th Queue (ft)	605	259	245	244
Link Distance (ft)	574	244	244	244
Upstream Blk Time (%)	99	14	14	14
Queuing Penalty (veh)	0	70	72	74
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: Pleasant Hill Road

Movement	EB	NB	NB	NB	NB	SB
Directions Served	R	T	T	T	R	T
Maximum Queue (ft)	561	44	72	79	79	148
Average Queue (ft)	450	29	32	42	42	24
95th Queue (ft)	721	146	162	208	206	85
Link Distance (ft)	505	288	288	288	288	244
Upstream Blk Time (%)	73		0	13	13	0
Queuing Penalty (veh)	0		0	63	63	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 17: Pleasant Hill Road

Movement	WB	NB	NB	SB	SB	SB
Directions Served	R	T	T	T	T	TR
Maximum Queue (ft)	506	182	179	12	23	69
Average Queue (ft)	318	125	151	0	1	7
95th Queue (ft)	615	216	201	6	13	35
Link Distance (ft)	458	150	150	288	288	288
Upstream Blk Time (%)	32	39	66			
Queuing Penalty (veh)	0	168	281			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 18: Pleasant Hill Road

Movement	WB	SB	SB	B39	B39
Directions Served	R	T	T	T	T
Maximum Queue (ft)	37	519	523	590	647
Average Queue (ft)	4	248	254	260	287
95th Queue (ft)	20	652	664	728	800
Link Distance (ft)	82	432	432	570	570
Upstream Blk Time (%)		38	45	30	39
Queuing Penalty (veh)		232	273	183	235
Storage Bay Dist (ft)					
Storage Blk Time (%)		33			
Queuing Penalty (veh)		0			

Intersection: 19: Pleasant Hill Road & School Dwy.

Movement	WB	SB	SB
Directions Served	LR	T	T
Maximum Queue (ft)	101	302	285
Average Queue (ft)	26	132	150
95th Queue (ft)	90	352	368
Link Distance (ft)	250	266	266
Upstream Blk Time (%)		33	38
Queuing Penalty (veh)		199	229
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 20: Pleasant Hill Road & School Dwy.

Movement	WB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	67	677	676
Average Queue (ft)	26	419	441
95th Queue (ft)	58	870	899
Link Distance (ft)	193	654	654
Upstream Blk Time (%)		33	44
Queuing Penalty (veh)		194	258
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 10370

Appendix E – Level of Service Worksheets: Cumulative Year 2035 No Project Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	55	0	0	0	24	838	0	0	2141	14
Future Volume (veh/h)	0	0	55	0	0	0	24	838	0	0	2141	14
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	0	1863	1900
Adj Flow Rate, veh/h	0	0	60	0	0	0	26	911	0	0	2327	15
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	75	0	88	0	290	3017	0	0	2283	15
Arrive On Green	0.00	0.00	0.05	0.00	0.00	0.00	0.16	0.85	0.00	0.00	0.63	0.63
Sat Flow, veh/h	0	0	1583	0	1863	0	1774	3632	0	0	3698	23
Grp Volume(v), veh/h	0	0	60	0	0	0	26	911	0	0	1141	1201
Grp Sat Flow(s),veh/h/ln	0	0	1583	0	1863	0	1774	1770	0	0	1770	1859
Q Serve(g_s), s	0.0	0.0	3.4	0.0	0.0	0.0	1.1	4.6	0.0	0.0	57.0	57.0
Cycle Q Clear(g_c), s	0.0	0.0	3.4	0.0	0.0	0.0	1.1	4.6	0.0	0.0	57.0	57.0
Prop In Lane	0.00		1.00	0.00		0.00	1.00		0.00	0.00		0.01
Lane Grp Cap(c), veh/h	0	0	75	0	88	0	290	3017	0	0	1121	1177
V/C Ratio(X)	0.00	0.00	0.80	0.00	0.00	0.00	0.09	0.30	0.00	0.00	1.02	1.02
Avail Cap(c_a), veh/h	0	0	281	0	331	0	290	3017	0	0	1121	1177
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	42.4	0.0	0.0	0.0	31.9	1.3	0.0	0.0	16.5	16.5
Incr Delay (d2), s/veh	0.0	0.0	13.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	31.5	31.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.8	0.0	0.0	0.0	0.6	2.3	0.0	0.0	37.2	39.1
LnGrp Delay(d),s/veh	0.0	0.0	55.7	0.0	0.0	0.0	32.0	1.6	0.0	0.0	48.0	48.0
LnGrp LOS			E				C	A			F	F
Approach Vol, veh/h		60			0			937			2342	
Approach Delay, s/veh		55.7			0.0			2.4			48.0	
Approach LOS		E						A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		81.7		8.3	19.7	62.0		8.3
Change Period (Y+Rc), s		5.0		4.0	5.0	* 5		4.0
Max Green Setting (Gmax), s		65.0		16.0	4.0	* 57		16.0
Max Q Clear Time (g_c+I1), s		6.6		0.0	3.1	59.0		5.4
Green Ext Time (p_c), s		11.4		0.0	0.0	0.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	35.3
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	8	27	0	14	0	943	19	11	2382	2
Future Volume (veh/h)	3	0	8	27	0	14	0	943	19	11	2382	2
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	3	0	9	29	0	0	0	993	0	12	2534	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	41	3	34	91	0	42	1	3079	1377	19	3218	1440
Arrive On Green	0.03	0.00	0.03	0.03	0.00	0.00	0.00	0.87	0.00	0.01	0.91	0.00
Sat Flow, veh/h	317	108	1274	1501	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	12	0	0	29	0	0	0	993	0	12	2534	0
Grp Sat Flow(s),veh/h/ln	1698	0	0	1501	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.0	1.6	0.0	0.0	0.0	7.1	0.0	0.9	32.0	0.0
Cycle Q Clear(g_c), s	1.0	0.0	0.0	2.6	0.0	0.0	0.0	7.1	0.0	0.9	32.0	0.0
Prop In Lane	0.25		0.75	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	0	0	91	0	42	1	3079	1377	19	3218	1440
V/C Ratio(X)	0.16	0.00	0.00	0.32	0.00	0.00	0.00	0.32	0.00	0.63	0.79	0.00
Avail Cap(c_a), veh/h	322	0	0	314	0	294	51	3079	1377	51	3218	1440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	66.8	0.0	0.0	67.5	0.0	0.0	0.0	1.6	0.0	69.0	2.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.7	0.0	0.0	0.0	0.3	0.0	12.4	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	1.1	0.0	0.0	0.0	3.6	0.0	0.5	15.7	0.0
LnGrp Delay(d),s/veh	67.5	0.0	0.0	68.3	0.0	0.0	0.0	1.9	0.0	81.3	4.1	0.0
LnGrp LOS	E			E				A		F	A	
Approach Vol, veh/h		12			29			993			2546	
Approach Delay, s/veh		67.5			68.3			1.9			4.4	
Approach LOS		E			E			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	126.8		7.7	0.0	132.3		7.7
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	4.6	97.0		26.0	4.0	97.0		26.0
Max Q Clear Time (g_c+I1), s	2.9	9.1		4.6	0.0	34.0		3.0
Green Ext Time (p_c), s	0.0	13.4		0.0	0.0	56.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	4.5
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	360	151	944	2532	16
Future Volume (veh/h)	35	360	151	944	2532	16
Number	3	18	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	38	0	164	1026	2752	17
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	49	44	130	3229	2875	1286
Arrive On Green	0.03	0.00	0.07	0.91	0.81	0.81
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	38	0	164	1026	2752	17
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	3.2	0.0	11.0	5.4	98.4	0.3
Cycle Q Clear(g_c), s	3.2	0.0	11.0	5.4	98.4	0.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	49	44	130	3229	2875	1286
V/C Ratio(X)	0.77	0.00	1.26	0.32	0.96	0.01
Avail Cap(c_a), veh/h	272	243	130	3229	2875	1286
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.5	0.0	69.5	0.8	11.9	2.7
Incr Delay (d2), s/veh	17.1	0.0	164.9	0.3	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	11.3	2.7	50.8	0.1
LnGrp Delay(d),s/veh	89.6	0.0	234.4	1.1	21.3	2.7
LnGrp LOS	F		F	A	C	A
Approach Vol, veh/h	38			1190	2769	
Approach Delay, s/veh	89.6			33.2	21.2	
Approach LOS	F			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		141.8			15.0	126.8		8.2
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0
Max Green Setting (Gmax), s		118.0			11.0	103.0		23.0
Max Q Clear Time (g_c+I1), s		7.4			13.0	100.4		5.2
Green Ext Time (p_c), s		14.2			0.0	2.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	25.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	8	191	106	39	16	162	801	74	63	2998	114
Future Volume (veh/h)	93	8	191	106	39	16	162	801	74	63	2998	114
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1863	1520	1520	1520
Adj Flow Rate, veh/h	101	9	0	115	42	17	172	852	79	65	3091	118
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	12	183	169	47	19	114	2677	1198	78	2138	956
Arrive On Green	0.12	0.12	0.00	0.12	0.12	0.12	0.07	0.76	0.76	0.05	0.74	0.74
Sat Flow, veh/h	1186	106	1583	1116	408	165	1632	3539	1583	1447	2887	1292
Grp Volume(v), veh/h	110	0	0	174	0	0	172	852	79	65	3091	118
Grp Sat Flow(s),veh/h/ln	1292	0	1583	1689	0	0	1632	1770	1583	1447	1444	1292
Q Serve(g_s), s	0.0	0.0	0.0	2.5	0.0	0.0	10.5	11.6	1.9	6.7	111.1	3.9
Cycle Q Clear(g_c), s	12.5	0.0	0.0	15.0	0.0	0.0	10.5	11.6	1.9	6.7	111.1	3.9
Prop In Lane	0.92		1.00	0.66		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	195	0	183	235	0	0	114	2677	1198	78	2138	956
V/C Ratio(X)	0.56	0.00	0.00	0.74	0.00	0.00	1.51	0.32	0.07	0.83	1.45	0.12
Avail Cap(c_a), veh/h	265	0	264	312	0	0	114	2677	1198	140	2138	956
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.2	0.0	0.0	65.1	0.0	0.0	69.8	5.9	4.7	70.3	19.5	5.6
Incr Delay (d2), s/veh	0.9	0.0	0.0	3.9	0.0	0.0	267.4	0.3	0.1	8.2	203.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	0.0	7.4	0.0	0.0	13.2	5.7	0.9	2.8	104.0	1.4
LnGrp Delay(d),s/veh	65.1	0.0	0.0	69.1	0.0	0.0	337.1	6.2	4.8	78.4	222.7	5.8
LnGrp LOS	E			E			F	A	A	E	F	A
Approach Vol, veh/h		110			174			1103			3274	
Approach Delay, s/veh		65.1			69.1			57.7			212.1	
Approach LOS		E			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.6	117.6		20.8	14.0	115.2		20.8
Change Period (Y+Rc), s	3.5	4.1		3.5	3.5	4.1		3.5
Max Green Setting (Gmax), s	14.5	99.4		25.0	10.5	103.4		25.0
Max Q Clear Time (g_c+I1), s	13.7	13.6		17.0	12.5	113.1		14.5
Green Ext Time (p_c), s	0.0	11.2		0.4	0.0	0.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	166.7
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	253	77	88	378	161	68	227	915	291	198	2279	885
Future Volume (veh/h)	253	77	88	378	161	68	227	915	291	198	2279	885
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.91	1.00		0.93
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1471	1471	1471
Adj Flow Rate, veh/h	275	84	96	293	340	74	247	995	316	215	2477	962
Adj No. of Lanes	2	1	0	1	1	1	1	2	1	1	2	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	431	99	113	306	321	272	135	1484	605	232	1423	590
Arrive On Green	0.13	0.13	0.13	0.17	0.17	0.17	0.08	0.42	0.42	0.17	0.51	0.51
Sat Flow, veh/h	3442	792	906	1774	1863	1578	1774	3539	1444	1401	2794	1159
Grp Volume(v), veh/h	275	0	180	293	340	74	247	995	316	215	2477	962
Grp Sat Flow(s),veh/h/ln	1721	0	1698	1774	1863	1578	1774	1770	1444	1401	1397	1159
Q Serve(g_s), s	11.0	0.0	15.0	23.7	25.0	5.9	11.0	32.9	23.6	21.9	73.8	73.8
Cycle Q Clear(g_c), s	11.0	0.0	15.0	23.7	25.0	5.9	11.0	32.9	23.6	21.9	73.8	73.8
Prop In Lane	1.00		0.53	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	431	0	213	306	321	272	135	1484	605	232	1423	590
V/C Ratio(X)	0.64	0.00	0.85	0.96	1.06	0.27	1.84	0.67	0.52	0.93	1.74	1.63
Avail Cap(c_a), veh/h	593	0	293	306	321	272	135	1484	605	270	1423	590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.3	0.0	62.0	59.5	60.0	52.1	67.0	34.0	31.3	59.6	35.6	35.6
Incr Delay (d2), s/veh	0.6	0.0	11.6	39.8	66.5	0.2	403.3	2.4	3.2	31.1	336.5	291.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	7.7	15.0	18.8	2.6	20.5	16.5	9.9	10.5	94.9	71.3
LnGrp Delay(d),s/veh	60.9	0.0	73.6	99.3	126.5	52.3	470.3	36.5	34.5	90.7	372.0	326.8
LnGrp LOS	E		E	F	F	D	F	D	C	F	F	F
Approach Vol, veh/h		455			707			1558			3654	
Approach Delay, s/veh		65.9			107.5			104.8			343.6	
Approach LOS		E			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	28.0	65.8		29.0	15.0	78.8		22.2
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	28.0	50.0		25.0	11.0	67.0		25.0
Max Q Clear Time (g_c+I1), s	23.9	34.9		27.0	13.0	75.8		17.0
Green Ext Time (p_c), s	0.1	7.2		0.0	0.0	0.0		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	239.2
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	341	347	97	0	0	0	360	1107	637	0	791	849
Future Volume (veh/h)	341	347	97	0	0	0	360	1107	637	0	791	849
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				1863	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	371	377	105				375	1153	664	0	841	0
Adj No. of Lanes	1	2	0				1	2	1	0	2	1
Peak Hour Factor	0.92	0.92	0.92				0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				2	2	2	0	2	2
Cap, veh/h	424	656	180				407	2320	1038	0	1351	605
Arrive On Green	0.24	0.24	0.24				0.23	0.66	0.66	0.00	0.38	0.00
Sat Flow, veh/h	1774	2744	755				1774	3539	1583	0	3632	1583
Grp Volume(v), veh/h	371	242	240				375	1153	664	0	841	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1729				1774	1770	1583	0	1770	1583
Q Serve(g_s), s	18.1	10.8	11.1				18.6	15.0	22.4	0.0	17.3	0.0
Cycle Q Clear(g_c), s	18.1	10.8	11.1				18.6	15.0	22.4	0.0	17.3	0.0
Prop In Lane	1.00		0.44				1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	424	423	413				407	2320	1038	0	1351	605
V/C Ratio(X)	0.88	0.57	0.58				0.92	0.50	0.64	0.00	0.62	0.00
Avail Cap(c_a), veh/h	503	501	490				414	2320	1038	0	1351	605
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.31	0.31	0.31	0.00	1.00	0.00
Uniform Delay (d), s/veh	33.0	30.2	30.3				33.9	7.9	9.2	0.0	22.6	0.0
Incr Delay (d2), s/veh	12.6	0.5	0.5				10.3	0.2	0.9	0.0	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	5.4	5.3				10.2	7.3	9.9	0.0	8.8	0.0
LnGrp Delay(d),s/veh	45.6	30.6	30.8				44.2	8.2	10.1	0.0	24.7	0.0
LnGrp LOS	D	C	C				D	A	B		C	
Approach Vol, veh/h		853						2192			841	
Approach Delay, s/veh		37.2						14.9			24.7	
Approach LOS		D						B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		64.0		26.0	24.6	39.4		
Change Period (Y+Rc), s		5.0		4.5	4.0	5.0		
Max Green Setting (Gmax), s		55.0		25.5	21.0	30.0		
Max Q Clear Time (g_c+I1), s		24.4		20.1	20.6	19.3		
Green Ext Time (p_c), s		19.4		1.4	0.0	5.2		

Intersection Summary	
HCM 2010 Ctrl Delay	21.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	51	212	19	0	219	0	1641	32	129	721	0
Future Volume (veh/h)	26	51	212	19	0	219	0	1641	32	129	721	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	0	1863	0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	28	55	230	21	0	238	0	1692	33	134	751	0
Adj No. of Lanes	0	1	1	1	0	1	0	3	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.97	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	122	239	312	0	0	0	0	2177	42	170	2175	0
Arrive On Green	0.20	0.20	0.20	0.00	0.00	0.00	0.00	0.42	0.42	0.10	0.61	0.00
Sat Flow, veh/h	618	1214	1583		0		0	5303	100	1774	3632	0
Grp Volume(v), veh/h	83	0	230		0.0		0	1117	608	134	751	0
Grp Sat Flow(s),veh/h/ln	1832	0	1583				0	1695	1845	1774	1770	0
Q Serve(g_s), s	1.6	0.0	5.8				0.0	12.0	12.0	3.1	4.4	0.0
Cycle Q Clear(g_c), s	1.6	0.0	5.8				0.0	12.0	12.0	3.1	4.4	0.0
Prop In Lane	0.34		1.00				0.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	361	0	312				0	1438	782	170	2175	0
V/C Ratio(X)	0.23	0.00	0.74				0.00	0.78	0.78	0.79	0.35	0.00
Avail Cap(c_a), veh/h	691	0	597				0	1519	827	209	2337	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.3	0.0	16.0				0.0	10.5	10.5	18.7	4.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	3.4				0.0	2.5	4.5	14.7	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	2.8				0.0	6.1	7.1	2.2	2.1	0.0
LnGrp Delay(d),s/veh	14.6	0.0	19.4				0.0	13.0	15.0	33.5	4.1	0.0
LnGrp LOS	B		B					B	B	C	A	
Approach Vol, veh/h		313						1725			885	
Approach Delay, s/veh		18.1						13.7			8.5	
Approach LOS		B						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		12.3		30.1			8.1	22.0
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0
Max Green Setting (Gmax), s		16.0		28.0			5.0	19.0
Max Q Clear Time (g_c+I1), s		7.8		6.4			5.1	14.0
Green Ext Time (p_c), s		0.8		5.1			0.0	4.0

Intersection Summary	
HCM 2010 Ctrl Delay	12.6
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	698.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	42	322	77	277	1037	58	137	19	122	45	13	84
Future Vol, veh/h	42	322	77	277	1037	58	137	19	122	45	13	84
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	94	94	94	98	98	98	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	46	350	84	295	1103	62	140	19	124	49	14	91

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1165	0	0	434	0	0	2261	2239	392	2280	2250	1134
Stage 1	-	-	-	-	-	-	484	484	-	1724	1724	-
Stage 2	-	-	-	-	-	-	1777	1755	-	556	526	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	600	-	-	1126	-	-	~ 29	42	657	~ 28	42	247
Stage 1	-	-	-	-	-	-	564	552	-	113	144	-
Stage 2	-	-	-	-	-	-	~ 105	139	-	515	529	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	600	-	-	1126	-	-	~ 9	29	657	~ 8	29	247
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 9	29	-	~ 8	29	-
Stage 1	-	-	-	-	-	-	521	509	-	104	106	-
Stage 2	-	-	-	-	-	-	~ 42	103	-	371	488	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	1.9	$ 4181.6	$ 3054.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	10	657	600	-	-	1126	-	-	22
HCM Lane V/C Ratio	15.918	0.189	0.076	-	-	0.262	-	-	7.016
HCM Control Delay (s)	$ 7442.6	11.8	11.5	-	-	9.3	-	-	$ 3054.8
HCM Lane LOS	F	B	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	21.4	0.7	0.2	-	-	1.1	-	-	19.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	402	1506	234	745	5	437	22	136	13	35	44
Future Volume (veh/h)	42	402	1506	234	745	5	437	22	136	13	35	44
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	46	437	0	254	810	5	492	0	0	14	38	48
Adj No. of Lanes	1	1	1	1	1	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	640	544	301	887	5	613	0	274	21	58	73
Arrive On Green	0.03	0.34	0.00	0.17	0.48	0.48	0.17	0.00	0.00	0.09	0.09	0.09
Sat Flow, veh/h	1774	1863	1583	1774	1849	11	3548	0	1583	239	648	819
Grp Volume(v), veh/h	46	437	0	254	0	815	492	0	0	100	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1861	1774	0	1583	1706	0	0
Q Serve(g_s), s	1.8	14.3	0.0	9.9	0.0	28.9	9.5	0.0	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	1.8	14.3	0.0	9.9	0.0	28.9	9.5	0.0	0.0	4.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.14		0.48
Lane Grp Cap(c), veh/h	60	640	544	301	0	893	613	0	274	152	0	0
V/C Ratio(X)	0.77	0.68	0.00	0.84	0.00	0.91	0.80	0.00	0.00	0.66	0.00	0.00
Avail Cap(c_a), veh/h	100	680	578	399	0	993	798	0	356	384	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	34.1	20.0	0.0	28.6	0.0	17.1	28.3	0.0	0.0	31.4	0.0	0.0
Incr Delay (d2), s/veh	18.7	2.6	0.0	11.9	0.0	11.7	4.5	0.0	0.0	4.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	7.7	0.0	5.8	0.0	17.6	5.0	0.0	0.0	2.1	0.0	0.0
LnGrp Delay(d),s/veh	52.9	22.6	0.0	40.5	0.0	28.8	32.8	0.0	0.0	36.2	0.0	0.0
LnGrp LOS	D	C		D		C	C			D		
Approach Vol, veh/h		483			1069			492			100	
Approach Delay, s/veh		25.5			31.6			32.8			36.2	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		16.3	16.1	28.5		10.3	6.4	38.2
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		16.0	16.0	26.0		16.0	4.0	38.0
Max Q Clear Time (g_c+I1), s		11.5	11.9	16.3		6.0	3.8	30.9
Green Ext Time (p_c), s		0.8	0.3	1.9		0.3	0.0	3.3

Intersection Summary	
HCM 2010 Ctrl Delay	30.7
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	904	475	482	803	5	1476	13	899	30	10	15
Future Volume (veh/h)	2	904	475	482	803	5	1476	13	899	30	10	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	2	983	516	524	873	5	1564	0	946	33	11	16
Adj No. of Lanes	1	2	1	1	2	0	2	0	2	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	755	338	367	1508	9	1301	0	1816	102	34	49
Arrive On Green	0.00	0.21	0.21	0.21	0.42	0.42	0.37	0.00	0.37	0.11	0.11	0.11
Sat Flow, veh/h	1774	3539	1583	1774	3608	21	3548	0	3167	953	318	462
Grp Volume(v), veh/h	2	983	516	524	428	450	1564	0	946	60	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1859	1774	0	1583	1733	0	0
Q Serve(g_s), s	0.2	32.0	32.0	31.0	27.9	27.9	55.0	0.0	27.3	4.8	0.0	0.0
Cycle Q Clear(g_c), s	0.2	32.0	32.0	31.0	27.9	27.9	55.0	0.0	27.3	4.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.55		0.27
Lane Grp Cap(c), veh/h	4	755	338	367	739	777	1301	0	1816	185	0	0
V/C Ratio(X)	0.53	1.30	1.53	1.43	0.58	0.58	1.20	0.00	0.52	0.32	0.00	0.00
Avail Cap(c_a), veh/h	47	755	338	367	739	777	1301	0	1816	185	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	74.8	59.0	59.0	59.5	33.5	33.5	47.5	0.0	19.5	62.0	0.0	0.0
Incr Delay (d2), s/veh	82.9	145.5	252.0	208.3	1.1	1.1	98.6	0.0	1.1	4.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	30.9	37.6	36.4	13.8	14.5	44.7	0.0	12.1	2.5	0.0	0.0
LnGrp Delay(d),s/veh	157.7	204.5	311.0	267.8	34.7	34.6	146.1	0.0	20.5	66.6	0.0	0.0
LnGrp LOS	F	F	F	F	C	C	F		C	E		
Approach Vol, veh/h		1501			1402			2510			60	
Approach Delay, s/veh		241.0			121.8			98.8			66.6	
Approach LOS		F			F			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		59.0	35.0	36.0		20.0	4.3	66.7
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		55.0	31.0	32.0		16.0	4.0	59.0
Max Q Clear Time (g_c+I1), s		57.0	33.0	34.0		6.8	2.2	29.9
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	6.3

Intersection Summary	
HCM 2010 Ctrl Delay	143.3
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	24.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	526	1236	0	0	3362
Future Vol, veh/h	0	526	1236	0	0	3362
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	572	1343	0	0	3654

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	672	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	~ 398	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	~ 398	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	236.7	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	398	-
HCM Lane V/C Ratio	-	-	1.437	-
HCM Control Delay (s)	-	-	236.7	-
HCM Lane LOS	-	-	F	-
HCM 95th %tile Q(veh)	-	-	29.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	11728	11572	11684	11710	11546	11651
Vehs Exited	11295	11131	11174	11242	11040	11174
Starting Vehs	771	790	760	818	832	787
Ending Vehs	1204	1231	1270	1286	1338	1268
Travel Distance (mi)	7253	7115	7208	7100	7176	7170
Travel Time (hr)	4071.2	4246.6	4199.2	4196.2	4251.1	4192.8
Total Delay (hr)	3825.5	4004.5	3954.8	3954.0	4008.1	3949.4
Total Stops	19358	20446	21140	20190	20712	20375
Fuel Used (gal)	1124.3	1161.1	1151.7	1149.6	1161.3	1149.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	11728	11572	11684	11710	11546	11651
Vehs Exited	11295	11131	11174	11242	11040	11174
Starting Vehs	771	790	760	818	832	787
Ending Vehs	1204	1231	1270	1286	1338	1268
Travel Distance (mi)	7253	7115	7208	7100	7176	7170
Travel Time (hr)	4071.2	4246.6	4199.2	4196.2	4251.1	4192.8
Total Delay (hr)	3825.5	4004.5	3954.8	3954.0	4008.1	3949.4
Total Stops	19358	20446	21140	20190	20712	20375
Fuel Used (gal)	1124.3	1161.1	1151.7	1149.6	1161.3	1149.6

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Old Tunnel Road	7	86.8	1627.4	0.1	4
SR 24 WB On Ramp	6	18.7	31.3	0.1	9
	17	10.2	16.1	0.1	15
	16	1.1	9.4	0.1	26
	15	1.7	10.5	0.1	35
Acalanes Avenue	14	4.9	12.7	0.1	18
	11	10.5	16.0	0.1	12
Stanley Boulevard	5	21.5	27.7	0.1	9
School Dwy.	20	3.5	9.8	0.1	22
School Dwy.	19	4.0	17.8	0.1	27
	18	4.6	10.1	0.1	21
	39	24.3	33.8	0.1	10
Quandt Road	4	26.3	36.9	0.1	12
	37	1.2	7.6	0.1	34
Reliez Valle Road	3	1.0	7.0	0.1	38
	58	0.5	8.6	0.1	38
Greenvalley Drive	2	2.6	23.4	0.2	36
	22	1.3	16.9	0.2	37
Rancho View Drive	1	2.8	21.8	0.2	36
Total		227.5	1945.0	1.9	17

Arterial Level of Service: SB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Rancho View Drive	1	217.8	2402.9	0.2	2
	22	289.6	311.1	0.2	3
Greenvalley Drive	2	283.1	580.7	0.2	2
	58	362.9	384.9	0.2	2
Reliez Valle Road	3	163.6	585.4	0.1	2
	37	73.9	81.1	0.1	3
Springhill Road	4	85.0	329.7	0.1	3
	39	107.3	119.4	0.1	4
	18	95.9	321.1	0.1	3
School Dwy.	19	63.6	167.5	0.1	3
School Dwy.	20	119.9	133.3	0.1	4
Deer Hill Road	5	50.0	55.6	0.1	4
	11	3.5	10.8	0.1	22
Acalanes Avenue	14	3.2	8.7	0.1	22
	15	6.8	14.3	0.1	17
	16	5.0	13.5	0.1	27
	17	3.7	12.4	0.1	20
Mt. Diablo Boulevard	6	13.8	19.9	0.1	11
SR 24 EB Off Ramp	7	8.1	14.1	0.1	15
Total		1956.6	5566.4	2.0	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	0	26	0	0	2	43	2078	0	0	1193	19
Future Volume (veh/h)	31	0	26	0	0	2	43	2078	0	0	1193	19
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	0	1863	1900
Adj Flow Rate, veh/h	34	0	28	0	0	2	47	2259	0	0	1243	20
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	116	0	34	0	0	83	550	2930	0	0	1608	26
Arrive On Green	0.05	0.00	0.05	0.00	0.00	0.05	0.31	0.83	0.00	0.00	0.45	0.45
Sat Flow, veh/h	795	0	654	0	0	1583	1774	3632	0	0	3658	57
Grp Volume(v), veh/h	62	0	0	0	0	2	47	2259	0	0	617	646
Grp Sat Flow(s),veh/h/ln	1449	0	0	0	0	1583	1774	1770	0	0	1770	1853
Q Serve(g_s), s	3.1	0.0	0.0	0.0	0.0	0.1	1.4	22.8	0.0	0.0	22.0	22.1
Cycle Q Clear(g_c), s	3.2	0.0	0.0	0.0	0.0	0.1	1.4	22.8	0.0	0.0	22.0	22.1
Prop In Lane	0.55		0.45	0.00		1.00	1.00		0.00	0.00		0.03
Lane Grp Cap(c), veh/h	150	0	0	0	0	83	550	2930	0	0	798	835
V/C Ratio(X)	0.41	0.00	0.00	0.00	0.00	0.02	0.09	0.77	0.00	0.00	0.77	0.77
Avail Cap(c_a), veh/h	389	0	0	0	0	338	550	2930	0	0	944	988
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	35.2	0.0	0.0	0.0	0.0	33.7	18.3	3.1	0.0	0.0	17.4	17.4
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	7.2	6.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	0.0	0.0	0.0	0.7	11.5	0.0	0.0	12.2	12.7
LnGrp Delay(d),s/veh	36.6	0.0	0.0	0.0	0.0	33.8	18.4	5.1	0.0	0.0	24.5	24.2
LnGrp LOS	D					C	B	A			C	C
Approach Vol, veh/h		62			2			2306			1263	
Approach Delay, s/veh		36.6			33.8			5.4			24.4	
Approach LOS		D			C			A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		67.1		7.9	28.3	38.8		7.9
Change Period (Y+Rc), s		5.0		4.0	5.0	* 5		4.0
Max Green Setting (Gmax), s		50.0		16.0	6.0	* 40		16.0
Max Q Clear Time (g_c+I1), s		24.8		2.1	3.4	24.1		5.2
Green Ext Time (p_c), s		22.6		0.0	0.0	9.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	12.5
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	6	64	0	27	16	2115	84	56	1168	0
Future Volume (veh/h)	3	0	6	64	0	27	16	2115	84	56	1168	0
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	3	0	7	70	0	0	17	2299	0	58	1217	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	14	72	148	0	97	26	2821	1262	59	2888	1292
Arrive On Green	0.06	0.00	0.06	0.06	0.00	0.00	0.01	0.80	0.00	0.03	0.82	0.00
Sat Flow, veh/h	275	231	1179	1437	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	10	0	0	70	0	0	17	2299	0	58	1217	0
Grp Sat Flow(s),veh/h/ln	1685	0	0	1437	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.0	5.0	0.0	0.0	1.1	45.1	0.0	3.9	11.6	0.0
Cycle Q Clear(g_c), s	0.7	0.0	0.0	5.7	0.0	0.0	1.1	45.1	0.0	3.9	11.6	0.0
Prop In Lane	0.30		0.70	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	142	0	0	148	0	97	26	2821	1262	59	2888	1292
V/C Ratio(X)	0.07	0.00	0.00	0.47	0.00	0.00	0.66	0.81	0.00	0.98	0.42	0.00
Avail Cap(c_a), veh/h	379	0	0	366	0	343	74	2821	1262	59	2888	1292
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.2	0.0	0.0	55.5	0.0	0.0	58.8	7.0	0.0	58.0	3.1	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.9	0.0	0.0	10.5	2.7	0.0	109.6	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	2.3	0.0	0.0	0.6	22.5	0.0	3.7	5.8	0.0
LnGrp Delay(d),s/veh	53.4	0.0	0.0	56.4	0.0	0.0	69.3	9.8	0.0	167.6	3.5	0.0
LnGrp LOS	D			E			E	A		F	A	
Approach Vol, veh/h		10			70			2316			1275	
Approach Delay, s/veh		53.4			56.4			10.2			11.0	
Approach LOS		D			E			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	100.7		11.3	5.7	102.9		11.3
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	4.0	77.0		26.0	5.0	76.0		26.0
Max Q Clear Time (g_c+I1), s	15.9	47.1		7.7	3.1	13.6		2.7
Green Ext Time (p_c), s	0.0	26.7		0.2	0.0	19.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.5
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	177	204	2167	1219	32
Future Volume (veh/h)	29	177	204	2167	1219	32
Number	3	18	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	32	0	217	2305	1283	34
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.94	0.94	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	43	39	251	3099	2440	1092
Arrive On Green	0.02	0.00	0.14	0.88	0.69	0.69
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	32	0	217	2305	1283	34
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	1.6	0.0	10.8	20.9	15.9	0.6
Cycle Q Clear(g_c), s	1.6	0.0	10.8	20.9	15.9	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	43	39	251	3099	2440	1092
V/C Ratio(X)	0.74	0.00	0.86	0.74	0.53	0.03
Avail Cap(c_a), veh/h	453	405	276	3099	2440	1092
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	0.0	37.8	2.0	6.8	4.4
Incr Delay (d2), s/veh	16.4	0.0	20.6	1.7	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	6.7	10.3	7.9	0.3
LnGrp Delay(d),s/veh	60.0	0.0	58.4	3.7	7.6	4.5
LnGrp LOS	E		E	A	A	A
Approach Vol, veh/h	32			2522	1317	
Approach Delay, s/veh	60.0			8.4	7.5	
Approach LOS	E			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		83.8			16.8	67.0		6.2
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0
Max Green Setting (Gmax), s		58.0			14.0	40.0		23.0
Max Q Clear Time (g_c+I1), s		22.9			12.8	17.9		3.6
Green Ext Time (p_c), s		30.8			0.0	13.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.5
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	11	164	45	10	11	183	2297	79	13	1366	47
Future Volume (veh/h)	74	11	164	45	10	11	183	2297	79	13	1366	47
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1863	1520	1520	1520
Adj Flow Rate, veh/h	80	12	0	49	11	12	191	2393	82	14	1423	49
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	15	119	128	28	21	217	2901	1298	18	2049	917
Arrive On Green	0.08	0.08	0.00	0.08	0.08	0.08	0.12	0.82	0.82	0.01	0.71	0.71
Sat Flow, veh/h	1346	202	1583	1032	365	280	1774	3539	1583	1447	2887	1292
Grp Volume(v), veh/h	92	0	0	72	0	0	191	2393	82	14	1423	49
Grp Sat Flow(s),veh/h/ln	1548	0	1583	1677	0	0	1774	1770	1583	1447	1444	1292
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	0.0	12.7	45.2	1.2	1.2	33.8	1.4
Cycle Q Clear(g_c), s	6.8	0.0	0.0	4.8	0.0	0.0	12.7	45.2	1.2	1.2	33.8	1.4
Prop In Lane	0.87		1.00	0.68		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	173	0	119	177	0	0	217	2901	1298	18	2049	917
V/C Ratio(X)	0.53	0.00	0.00	0.41	0.00	0.00	0.88	0.82	0.06	0.78	0.69	0.05
Avail Cap(c_a), veh/h	363	0	330	374	0	0	244	2901	1298	54	2049	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.4	0.0	0.0	53.5	0.0	0.0	51.8	6.0	2.1	59.1	10.0	5.3
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.6	0.0	0.0	24.8	2.8	0.1	22.9	2.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	0.0	2.3	0.0	0.0	7.7	22.4	0.5	0.6	13.8	0.5
LnGrp Delay(d),s/veh	55.3	0.0	0.0	54.1	0.0	0.0	76.6	8.8	2.1	81.9	11.9	5.4
LnGrp LOS	E			D			E	A	A	F	B	A
Approach Vol, veh/h		92			72			2666			1486	
Approach Delay, s/veh		55.3			54.1			13.5			12.4	
Approach LOS		E			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.0	102.5		12.5	18.2	89.3		12.5
Change Period (Y+Rc), s	3.5	4.1		3.5	3.5	4.1		3.5
Max Green Setting (Gmax), s	1.5	79.4		25.0	16.5	67.4		25.0
Max Q Clear Time (g_c+I1), s	3.2	47.2		6.8	14.7	35.8		8.8
Green Ext Time (p_c), s	0.0	29.4		0.2	0.0	18.4		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.7
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	568	119	72	351	134	111	138	1809	285	153	1227	354
Future Volume (veh/h)	568	119	72	351	134	111	138	1809	285	153	1227	354
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.92	1.00		0.92
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1471	1471	1471
Adj Flow Rate, veh/h	617	129	78	264	311	121	150	1966	310	163	1305	377
Adj No. of Lanes	2	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	593	187	113	306	321	272	147	1536	651	126	1272	523
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.08	0.45	0.45	0.09	0.46	0.46
Sat Flow, veh/h	3442	1087	657	1774	1863	1578	1774	3427	1453	1401	2794	1148
Grp Volume(v), veh/h	617	0	207	264	311	121	150	1966	310	163	1305	377
Grp Sat Flow(s),veh/h/ln	1721	0	1744	1774	1863	1578	1774	1714	1453	1401	1397	1148
Q Serve(g_s), s	25.0	0.0	16.2	21.0	24.1	10.0	12.0	65.0	21.7	13.0	66.0	38.6
Cycle Q Clear(g_c), s	25.0	0.0	16.2	21.0	24.1	10.0	12.0	65.0	21.7	13.0	66.0	38.6
Prop In Lane	1.00		0.38	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	593	0	301	306	321	272	147	1536	651	126	1272	523
V/C Ratio(X)	1.04	0.00	0.69	0.86	0.97	0.44	1.02	1.28	0.48	1.30	1.03	0.72
Avail Cap(c_a), veh/h	593	0	301	306	321	272	147	1536	651	126	1272	523
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	0.0	56.3	58.3	59.6	53.8	66.5	40.0	28.1	66.0	39.5	32.0
Incr Delay (d2), s/veh	47.7	0.0	5.4	20.8	41.4	0.4	80.1	131.0	2.5	180.5	32.1	8.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.8	0.0	8.3	12.0	16.0	4.4	9.1	58.7	9.1	11.3	31.1	13.5
LnGrp Delay(d),s/veh	107.7	0.0	61.8	79.1	101.0	54.2	146.9	171.0	30.5	246.5	71.6	40.4
LnGrp LOS	F		E	E	F	D	F	F	C	F	F	D
Approach Vol, veh/h		824			696			2426			1845	
Approach Delay, s/veh		96.1			84.5			151.5			80.7	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	70.0		29.0	16.0	71.0		29.0
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	13.0	65.0		25.0	12.0	66.0		25.0
Max Q Clear Time (g_c+I1), s	15.0	67.0		26.1	14.0	68.0		27.0
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	113.0
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	639	389	0	0	0	346	801	594	0	798	798
Future Volume (veh/h)	320	639	389	0	0	0	346	801	594	0	798	798
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				1863	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	348	695	423				376	871	646	0	858	0
Adj No. of Lanes	1	2	0				1	2	1	0	2	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				2	2	2	0	2	2
Cap, veh/h	603	720	437				378	1888	844	0	944	422
Arrive On Green	0.34	0.34	0.34				0.21	0.53	0.53	0.00	0.27	0.00
Sat Flow, veh/h	1774	2119	1287				1774	3539	1583	0	3632	1583
Grp Volume(v), veh/h	348	580	538				376	871	646	0	858	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1636				1774	1770	1583	0	1770	1583
Q Serve(g_s), s	12.1	24.1	24.2				15.9	11.4	24.1	0.0	17.6	0.0
Cycle Q Clear(g_c), s	12.1	24.1	24.2				15.9	11.4	24.1	0.0	17.6	0.0
Prop In Lane	1.00		0.79				1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	603	602	556				378	1888	844	0	944	422
V/C Ratio(X)	0.58	0.96	0.97				0.99	0.46	0.76	0.00	0.91	0.00
Avail Cap(c_a), veh/h	603	602	556				378	1888	844	0	944	422
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.40	0.40	0.40	0.00	1.00	0.00
Uniform Delay (d), s/veh	20.3	24.3	24.3				29.4	10.8	13.8	0.0	26.6	0.0
Incr Delay (d2), s/veh	0.9	27.7	29.7				27.6	0.3	2.7	0.0	14.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	16.4	15.5				10.6	5.7	11.0	0.0	10.4	0.0
LnGrp Delay(d),s/veh	21.2	52.0	54.0				57.1	11.2	16.5	0.0	40.8	0.0
LnGrp LOS	C	D	D				E	B	B		D	
Approach Vol, veh/h		1466						1893			858	
Approach Delay, s/veh		45.4						22.1			40.8	
Approach LOS		D						C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		45.0		30.0	20.0	25.0		
Change Period (Y+Rc), s		5.0		4.5	4.0	5.0		
Max Green Setting (Gmax), s		40.0		25.5	16.0	20.0		
Max Q Clear Time (g_c+I1), s		26.1		26.2	17.9	19.6		
Green Ext Time (p_c), s		9.3		0.0	0.0	0.3		

Intersection Summary	
HCM 2010 Ctrl Delay	34.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	58	294	23	0	207	0	1451	21	172	1012	0
Future Volume (veh/h)	74	58	294	23	0	207	0	1451	21	172	1012	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	0	1863	0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	78	61	309	25	0	225	0	1577	23	187	1100	0
Adj No. of Lanes	0	1	1	1	0	1	0	3	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	244	191	380	0	0	0	0	2066	30	234	2152	0
Arrive On Green	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.40	0.40	0.13	0.61	0.00
Sat Flow, veh/h	1017	795	1583		0		0	5332	75	1774	3632	0
Grp Volume(v), veh/h	139	0	309		0.0		0	1035	565	187	1100	0
Grp Sat Flow(s),veh/h/ln	1812	0	1583				0	1695	1849	1774	1770	0
Q Serve(g_s), s	3.3	0.0	9.7				0.0	13.9	13.9	5.4	9.3	0.0
Cycle Q Clear(g_c), s	3.3	0.0	9.7				0.0	13.9	13.9	5.4	9.3	0.0
Prop In Lane	0.56		1.00				0.00		0.04	1.00		0.00
Lane Grp Cap(c), veh/h	435	0	380				0	1356	740	234	2152	0
V/C Ratio(X)	0.32	0.00	0.81				0.00	0.76	0.76	0.80	0.51	0.00
Avail Cap(c_a), veh/h	586	0	512				0	1483	809	270	2355	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.5	0.0	18.9				0.0	13.6	13.6	22.2	5.9	0.0
Incr Delay (d2), s/veh	0.4	0.0	7.2				0.0	2.2	4.0	13.8	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	5.0				0.0	6.9	7.9	3.5	4.5	0.0
LnGrp Delay(d),s/veh	16.9	0.0	26.1				0.0	15.8	17.6	36.0	6.1	0.0
LnGrp LOS	B		C					B	B	D	A	
Approach Vol, veh/h		448						1600			1287	
Approach Delay, s/veh		23.2						16.5			10.4	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		16.6		36.0			10.9	25.0
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0
Max Green Setting (Gmax), s		17.0		35.0			8.0	23.0
Max Q Clear Time (g_c+I1), s		11.7		11.3			7.4	15.9
Green Ext Time (p_c), s		0.9		8.5			0.0	5.2

Intersection Summary	
HCM 2010 Ctrl Delay	15.0
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	94	94	94	98	98	98	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1	0	0	1	0	0	2	2	1	2	2	1
Stage 1	-	-	-	-	-	-	1	1	-	1	1	-
Stage 2	-	-	-	-	-	-	1	1	-	1	1	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1622	-	-	1622	-	-	1020	894	1084	1020	894	1084
Stage 1	-	-	-	-	-	-	1022	895	-	1022	895	-
Stage 2	-	-	-	-	-	-	1022	895	-	1022	895	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1622	-	-	1622	-	-	1020	894	1084	1020	894	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	1020	894	-	1020	894	-
Stage 1	-	-	-	-	-	-	1022	895	-	1022	895	-
Stage 2	-	-	-	-	-	-	1022	895	-	1022	895	-

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

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	1622	-	-	1622	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	-	0	-	-	0	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	469	1739	186	375	12	308	22	144	5	44	32
Future Volume (veh/h)	44	469	1739	186	375	12	308	22	144	5	44	32
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	48	510	0	202	408	13	352	0	0	5	48	35
Adj No. of Lanes	1	1	1	1	1	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	603	512	252	768	24	521	0	233	9	86	62
Arrive On Green	0.04	0.32	0.00	0.14	0.43	0.43	0.15	0.00	0.00	0.09	0.09	0.09
Sat Flow, veh/h	1774	1863	1583	1774	1795	57	3548	0	1583	99	947	690
Grp Volume(v), veh/h	48	510	0	202	0	421	352	0	0	88	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1853	1774	0	1583	1736	0	0
Q Serve(g_s), s	1.4	13.7	0.0	5.9	0.0	9.1	5.1	0.0	0.0	2.6	0.0	0.0
Cycle Q Clear(g_c), s	1.4	13.7	0.0	5.9	0.0	9.1	5.1	0.0	0.0	2.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.06		0.40
Lane Grp Cap(c), veh/h	67	603	512	252	0	793	521	0	233	157	0	0
V/C Ratio(X)	0.71	0.85	0.00	0.80	0.00	0.53	0.68	0.00	0.00	0.56	0.00	0.00
Avail Cap(c_a), veh/h	165	760	646	329	0	928	1053	0	470	515	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	25.6	17.0	0.0	22.4	0.0	11.4	21.8	0.0	0.0	23.5	0.0	0.0
Incr Delay (d2), s/veh	12.9	7.2	0.0	10.2	0.0	0.6	1.5	0.0	0.0	3.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	8.1	0.0	3.6	0.0	4.7	2.6	0.0	0.0	1.4	0.0	0.0
LnGrp Delay(d),s/veh	38.6	24.2	0.0	32.6	0.0	12.0	23.3	0.0	0.0	26.6	0.0	0.0
LnGrp LOS	D	C		C		B	C			C		
Approach Vol, veh/h		558			623			352			88	
Approach Delay, s/veh		25.4			18.7			23.3			26.6	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		11.9	11.7	21.5		8.9	6.1	27.1
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		16.0	10.0	22.0		16.0	5.0	27.0
Max Q Clear Time (g_c+I1), s		7.1	7.9	15.7		4.6	3.4	11.1
Green Ext Time (p_c), s		0.9	0.1	1.7		0.3	0.0	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	22.4
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1048	398	295	387	15	775	13	1213	32	13	10
Future Volume (veh/h)	13	1048	398	295	387	15	775	13	1213	32	13	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	14	1139	0	314	412	16	852	0	1318	35	14	11
Adj No. of Lanes	1	2	1	1	2	0	2	0	2	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	1062	475	310	1607	62	917	0	1372	136	55	43
Arrive On Green	0.01	0.30	0.00	0.17	0.46	0.46	0.26	0.00	0.26	0.13	0.13	0.13
Sat Flow, veh/h	1774	3539	1583	1774	3474	135	3548	0	3167	1024	409	322
Grp Volume(v), veh/h	14	1139	0	314	209	219	852	0	1318	60	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1839	1774	0	1583	1755	0	0
Q Serve(g_s), s	0.9	36.0	0.0	21.0	8.7	8.7	28.1	0.0	31.0	3.7	0.0	0.0
Cycle Q Clear(g_c), s	0.9	36.0	0.0	21.0	8.7	8.7	28.1	0.0	31.0	3.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	0.58		0.18
Lane Grp Cap(c), veh/h	22	1062	475	310	819	851	917	0	1372	234	0	0
V/C Ratio(X)	0.63	1.07	0.00	1.01	0.26	0.26	0.93	0.00	0.96	0.26	0.00	0.00
Avail Cap(c_a), veh/h	59	1062	475	310	819	851	917	0	1372	234	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	59.0	42.0	0.0	49.5	19.7	19.7	43.4	0.0	33.0	46.7	0.0	0.0
Incr Delay (d2), s/veh	26.4	49.3	0.0	54.0	0.2	0.2	16.9	0.0	16.5	2.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	24.8	0.0	14.9	4.3	4.5	15.9	0.0	24.2	2.0	0.0	0.0
LnGrp Delay(d),s/veh	85.4	91.3	0.0	103.6	19.8	19.8	60.3	0.0	49.5	49.3	0.0	0.0
LnGrp LOS	F	F		F	B	B	E		D	D		
Approach Vol, veh/h		1153			742			2170			60	
Approach Delay, s/veh		91.3			55.3			53.8			49.3	
Approach LOS		F			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		35.0	25.0	40.0		20.0	5.5	59.5
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		31.0	21.0	36.0		16.0	4.0	53.0
Max Q Clear Time (g_c+I1), s		33.0	23.0	38.0		5.7	2.9	10.7
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	64.5
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	12134	12005	12494	12088	12001	12144
Vehs Exited	11794	11570	12061	11702	11653	11756
Starting Vehs	587	562	589	603	607	589
Ending Vehs	927	997	1022	989	955	971
Travel Distance (mi)	7351	7306	7515	7326	7418	7383
Travel Time (hr)	4284.1	4561.6	4297.3	4162.1	4497.6	4360.5
Total Delay (hr)	4043.9	4322.6	4052.1	3922.8	4255.5	4119.4
Total Stops	18791	18242	19903	18690	18914	18908
Fuel Used (gal)	1185.3	1245.9	1191.3	1155.9	1233.9	1202.5

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	12134	12005	12494	12088	12001	12144
Vehs Exited	11794	11570	12061	11702	11653	11756
Starting Vehs	587	562	589	603	607	589
Ending Vehs	927	997	1022	989	955	971
Travel Distance (mi)	7351	7306	7515	7326	7418	7383
Travel Time (hr)	4284.1	4561.6	4297.3	4162.1	4497.6	4360.5
Total Delay (hr)	4043.9	4322.6	4052.1	3922.8	4255.5	4119.4
Total Stops	18791	18242	19903	18690	18914	18908
Fuel Used (gal)	1185.3	1245.9	1191.3	1155.9	1233.9	1202.5

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Old Tunnel Road	7	134.7	2168.4	0.1	3
SR 24 WB On Ramp	6	34.8	41.2	0.1	5
	17	26.2	31.5	0.1	7
	16	1.3	9.5	0.1	26
	15	1.1	9.7	0.1	38
Acalanes Avenue	14	1.5	9.8	0.1	23
	11	2.7	8.2	0.1	23
Stanley Boulevard	5	31.0	37.6	0.1	6
School Dwy.	20	3.7	9.9	0.1	22
School Dwy.	19	2.9	15.5	0.1	32
	18	0.9	6.6	0.1	33
	39	0.6	10.1	0.1	33
Quandt Road	4	4.5	15.3	0.1	28
	37	1.5	8.0	0.1	33
Reliez Valle Road	3	1.6	8.0	0.1	32
	58	0.9	8.9	0.1	36
Greenvalley Drive	2	6.7	27.5	0.2	31
	22	2.4	18.0	0.2	35
Rancho View Drive	1	3.5	23.2	0.2	34
Total		262.7	2466.9	1.9	16

Arterial Level of Service: SB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Rancho View Drive	1	3.9	20.3	0.2	29
	22	2.5	25.1	0.2	32
Greenvalley Drive	2	16.5	34.1	0.2	18
	58	70.8	94.1	0.2	9
Reliez Valle Road	3	57.6	72.1	0.1	5
	37	38.0	45.2	0.1	6
Springhill Road	4	55.5	66.0	0.1	4
	39	74.6	86.8	0.1	5
	18	73.5	110.8	0.1	4
School Dwy.	19	54.2	214.7	0.1	4
School Dwy.	20	109.1	122.6	0.1	4
Deer Hill Road	5	46.1	51.7	0.1	4
	11	3.7	11.0	0.1	22
Acalanes Avenue	14	4.7	10.9	0.1	20
	15	7.2	13.8	0.1	16
	16	4.4	12.6	0.1	29
	17	4.1	12.8	0.1	20
Mt. Diablo Boulevard	6	18.7	25.0	0.1	9
SR 24 EB Off Ramp	7	18.0	24.1	0.1	9
Total		663.2	1053.5	2.0	8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	31	0	0	0	29	3053	0	0	1165	27
Future Volume (veh/h)	10	0	31	0	0	0	29	3053	0	0	1165	27
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	0	1863	1900
Adj Flow Rate, veh/h	11	0	34	0	0	0	30	3115	0	0	1226	28
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	40	3	42	0	67	0	769	3200	0	0	1546	35
Arrive On Green	0.04	0.00	0.04	0.00	0.00	0.00	0.43	0.90	0.00	0.00	0.44	0.44
Sat Flow, veh/h	293	88	1178	0	1863	0	1774	3632	0	0	3630	81
Grp Volume(v), veh/h	45	0	0	0	0	0	30	3115	0	0	613	641
Grp Sat Flow(s),veh/h/ln	1559	0	0	0	1863	0	1774	1770	0	0	1770	1848
Q Serve(g_s), s	3.1	0.0	0.0	0.0	0.0	0.0	1.5	105.6	0.0	0.0	44.8	44.8
Cycle Q Clear(g_c), s	4.3	0.0	0.0	0.0	0.0	0.0	1.5	105.6	0.0	0.0	44.8	44.8
Prop In Lane	0.24		0.76	0.00		0.00	1.00		0.00	0.00		0.04
Lane Grp Cap(c), veh/h	86	0	0	0	67	0	769	3200	0	0	774	808
V/C Ratio(X)	0.52	0.00	0.00	0.00	0.00	0.00	0.04	0.97	0.00	0.00	0.79	0.79
Avail Cap(c_a), veh/h	195	0	0	0	199	0	769	3200	0	0	1357	1417
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	71.8	0.0	0.0	0.0	0.0	0.0	24.5	5.7	0.0	0.0	36.4	36.4
Incr Delay (d2), s/veh	3.6	0.0	0.0	0.0	0.0	0.0	0.0	10.8	0.0	0.0	8.2	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	0.0	0.0	0.0	0.7	53.3	0.0	0.0	23.6	24.6
LnGrp Delay(d),s/veh	75.4	0.0	0.0	0.0	0.0	0.0	24.5	16.6	0.0	0.0	44.5	44.2
LnGrp LOS	E						C	B			D	D
Approach Vol, veh/h		45			0			3145			1254	
Approach Delay, s/veh		75.4			0.0			16.6			44.4	
Approach LOS		E						B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		140.6		9.4	70.1	70.6		9.4
Change Period (Y+Rc), s		5.0		4.0	5.0	* 5		4.0
Max Green Setting (Gmax), s		125.0		16.0	6.0	* 1.2E2		16.0
Max Q Clear Time (g_c+I1), s		107.6		0.0	3.5	46.8		6.3
Green Ext Time (p_c), s		17.3		0.0	0.0	18.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	25.1
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	5	19	0	26	5	2982	34	18	1136	6
Future Volume (veh/h)	11	0	5	19	0	26	5	2982	34	18	1136	6
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	12	0	5	21	0	0	5	3043	0	19	1171	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	0	10	81	0	34	9	3106	1389	26	3140	1405
Arrive On Green	0.02	0.00	0.02	0.02	0.00	0.00	0.01	0.88	0.00	0.01	0.89	0.00
Sat Flow, veh/h	1168	0	487	1568	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	17	0	0	21	0	0	5	3043	0	19	1171	0
Grp Sat Flow(s),veh/h/ln	1655	0	0	1568	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	0.0	0.4	112.6	0.0	1.6	8.4	0.0
Cycle Q Clear(g_c), s	1.4	0.0	0.0	1.9	0.0	0.0	0.4	112.6	0.0	1.6	8.4	0.0
Prop In Lane	0.71		0.29	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	76	0	0	81	0	34	9	3106	1389	26	3140	1405
V/C Ratio(X)	0.22	0.00	0.00	0.26	0.00	0.00	0.56	0.98	0.00	0.73	0.37	0.00
Avail Cap(c_a), veh/h	297	0	0	295	0	274	47	3106	1389	47	3140	1405
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	72.5	0.0	0.0	72.7	0.0	0.0	74.5	8.0	0.0	73.6	1.4	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.6	0.0	0.0	19.0	12.1	0.0	13.8	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.9	0.0	0.0	0.3	58.0	0.0	0.9	4.1	0.0
LnGrp Delay(d),s/veh	73.6	0.0	0.0	73.3	0.0	0.0	93.5	20.1	0.0	87.4	1.8	0.0
LnGrp LOS	E			E			F	C		F	A	
Approach Vol, veh/h		17			21			3048			1190	
Approach Delay, s/veh		73.6			73.3			20.2			3.1	
Approach LOS		E			E			C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	136.6		7.2	4.8	138.1		7.2
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	4.6	107.0		26.0	4.0	107.0		26.0
Max Q Clear Time (g_c+I1), s	3.6	114.6		3.9	2.4	10.4		3.4
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	18.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	15.9
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	166	293	2998	1155	42
Future Volume (veh/h)	32	166	293	2998	1155	42
Number	3	18	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	35	0	308	3156	1255	46
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	45	40	326	3237	2492	1115
Arrive On Green	0.03	0.00	0.37	1.00	0.70	0.70
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	35	0	308	3156	1255	46
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	2.9	0.0	25.2	0.0	24.4	1.3
Cycle Q Clear(g_c), s	2.9	0.0	25.2	0.0	24.4	1.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	45	40	326	3237	2492	1115
V/C Ratio(X)	0.78	0.00	0.94	0.98	0.50	0.04
Avail Cap(c_a), veh/h	272	243	449	3237	2492	1115
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	72.7	0.0	46.7	0.0	10.2	6.8
Incr Delay (d2), s/veh	18.6	0.0	3.2	1.7	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	12.6	0.8	12.1	0.6
LnGrp Delay(d),s/veh	91.3	0.0	49.9	1.7	10.9	6.8
LnGrp LOS	F		D	A	B	A
Approach Vol, veh/h	35			3464	1301	
Approach Delay, s/veh	91.3			6.0	10.8	
Approach LOS	F			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		142.2			31.6	110.6		7.8
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0
Max Green Setting (Gmax), s		118.0			38.0	76.0		23.0
Max Q Clear Time (g_c+I1), s		2.0			27.2	26.4		4.9
Green Ext Time (p_c), s		111.2			0.3	19.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	7.9
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	3	140	35	0	10	198	3244	53	23	1361	39
Future Volume (veh/h)	31	3	140	35	0	10	198	3244	53	23	1361	39
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1863	1520	1520	1520
Adj Flow Rate, veh/h	34	3	0	38	0	11	206	3379	55	24	1448	41
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	6	65	95	0	15	227	3064	1371	27	2185	977
Arrive On Green	0.04	0.04	0.00	0.04	0.00	0.04	0.13	0.87	0.87	0.01	0.51	0.51
Sat Flow, veh/h	1515	134	1583	1255	0	363	1774	3539	1583	1447	2887	1292
Grp Volume(v), veh/h	37	0	0	49	0	0	206	3379	55	24	1448	41
Grp Sat Flow(s),veh/h/ln	1649	0	1583	1619	0	0	1774	1770	1583	1447	1444	1292
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	0.0	17.2	129.9	0.7	2.5	55.9	2.4
Cycle Q Clear(g_c), s	3.1	0.0	0.0	4.3	0.0	0.0	17.2	129.9	0.7	2.5	55.9	2.4
Prop In Lane	0.92		1.00	0.78		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	0	65	110	0	0	227	3064	1371	27	2185	977
V/C Ratio(X)	0.32	0.00	0.00	0.45	0.00	0.00	0.91	1.10	0.04	0.88	0.66	0.04
Avail Cap(c_a), veh/h	293	0	264	290	0	0	254	3064	1371	43	2185	977
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.81	0.81	0.81
Uniform Delay (d), s/veh	70.4	0.0	0.0	70.9	0.0	0.0	64.5	10.1	1.4	73.9	22.8	9.6
Incr Delay (d2), s/veh	0.6	0.0	0.0	1.1	0.0	0.0	29.5	51.9	0.1	39.3	1.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	2.0	0.0	0.0	10.3	83.4	0.3	1.3	22.8	0.9
LnGrp Delay(d),s/veh	71.0	0.0	0.0	71.9	0.0	0.0	94.0	61.9	1.5	113.2	24.1	9.7
LnGrp LOS	E			E			F	F	A	F	C	A
Approach Vol, veh/h		37			49			3640			1513	
Approach Delay, s/veh		71.0			71.9			62.8			25.1	
Approach LOS		E			E			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.3	134.0		9.7	22.7	117.6		9.7
Change Period (Y+Rc), s	3.5	4.1		3.5	3.5	4.1		3.5
Max Green Setting (Gmax), s	4.5	109.4		25.0	21.5	92.4		25.0
Max Q Clear Time (g_c+I1), s	4.5	131.9		6.3	19.2	57.9		5.1
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	19.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	52.1
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1039	143	82	296	108	241	64	2265	294	170	1029	291
Future Volume (veh/h)	1039	143	82	296	108	241	64	2265	294	170	1029	291
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.91	1.00		0.91
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1471	1471	1471
Adj Flow Rate, veh/h	1094	151	86	220	260	262	66	2335	303	185	1118	316
Adj No. of Lanes	2	1	0	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.97	0.97	0.97	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	807	261	149	306	321	272	73	1371	575	106	1214	497
Arrive On Green	0.23	0.23	0.23	0.17	0.17	0.17	0.04	0.40	0.40	0.08	0.43	0.43
Sat Flow, veh/h	3442	1114	635	1774	1863	1578	1774	3427	1437	1401	2794	1144
Grp Volume(v), veh/h	1094	0	237	220	260	262	66	2335	303	185	1118	316
Grp Sat Flow(s),veh/h/ln	1721	0	1749	1774	1863	1578	1774	1714	1437	1401	1397	1144
Q Serve(g_s), s	34.0	0.0	17.4	17.0	19.5	23.9	5.4	58.0	23.2	11.0	54.7	31.3
Cycle Q Clear(g_c), s	34.0	0.0	17.4	17.0	19.5	23.9	5.4	58.0	23.2	11.0	54.7	31.3
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	807	0	410	306	321	272	73	1371	575	106	1214	497
V/C Ratio(X)	1.36	0.00	0.58	0.72	0.81	0.96	0.90	1.70	0.53	1.74	0.92	0.64
Avail Cap(c_a), veh/h	807	0	410	306	321	272	73	1371	575	106	1214	497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.5	0.0	49.1	56.7	57.7	59.5	69.2	43.5	33.1	67.0	38.7	32.0
Incr Delay (d2), s/veh	168.1	0.0	1.3	6.9	13.4	44.1	70.0	319.6	3.4	369.5	12.7	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	35.0	0.0	8.6	8.9	11.2	13.7	4.1	88.3	9.7	15.2	23.3	10.7
LnGrp Delay(d),s/veh	223.6	0.0	50.5	63.6	71.1	103.6	139.2	363.1	36.5	436.5	51.4	38.1
LnGrp LOS	F		D	E	E	F	F	F	D	F	D	D
Approach Vol, veh/h		1331			742			2704			1619	
Approach Delay, s/veh		192.8			80.4			321.0			92.8	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	63.0		29.0	10.0	68.0		38.0
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	11.0	58.0		25.0	6.0	63.0		34.0
Max Q Clear Time (g_c+I1), s	13.0	60.0		25.9	7.4	56.7		36.0
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	4.9		0.0

Intersection Summary		
HCM 2010 Ctrl Delay	208.6	
HCM 2010 LOS	F	

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	317	692	376	0	0	0	333	785	373	0	862	647
Future Volume (veh/h)	317	692	376	0	0	0	333	785	373	0	862	647
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				1863	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	345	752	409				347	818	389	0	917	0
Adj No. of Lanes	1	2	0				1	2	1	0	2	1
Peak Hour Factor	0.92	0.92	0.92				0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				2	2	2	0	2	2
Cap, veh/h	603	754	409				355	1888	844	0	991	443
Arrive On Green	0.34	0.34	0.34				0.20	0.53	0.53	0.00	0.28	0.00
Sat Flow, veh/h	1774	2218	1202				1774	3539	1583	0	3632	1583
Grp Volume(v), veh/h	345	599	562				347	818	389	0	917	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1651				1774	1770	1583	0	1770	1583
Q Serve(g_s), s	12.0	25.4	25.5				14.6	10.5	11.4	0.0	18.9	0.0
Cycle Q Clear(g_c), s	12.0	25.4	25.5				14.6	10.5	11.4	0.0	18.9	0.0
Prop In Lane	1.00		0.73				1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	603	602	561				355	1888	844	0	991	443
V/C Ratio(X)	0.57	1.00	1.00				0.98	0.43	0.46	0.00	0.93	0.00
Avail Cap(c_a), veh/h	603	602	561				355	1888	844	0	991	443
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.53	0.53	0.53	0.00	1.00	0.00
Uniform Delay (d), s/veh	20.3	24.7	24.8				29.8	10.6	10.8	0.0	26.2	0.0
Incr Delay (d2), s/veh	0.8	35.7	38.1				29.2	0.4	1.0	0.0	15.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	18.3	17.5				10.0	5.2	5.2	0.0	11.3	0.0
LnGrp Delay(d),s/veh	21.1	60.4	62.9				59.0	11.0	11.8	0.0	41.7	0.0
LnGrp LOS	C	E	F				E	B	B		D	
Approach Vol, veh/h		1506						1554			917	
Approach Delay, s/veh		52.3						21.9			41.7	
Approach LOS		D						C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		45.0		30.0	19.0	26.0		
Change Period (Y+Rc), s		5.0		4.5	4.0	5.0		
Max Green Setting (Gmax), s		40.0		25.5	15.0	21.0		
Max Q Clear Time (g_c+I1), s		13.4		27.5	16.6	20.9		
Green Ext Time (p_c), s		11.3		0.0	0.0	0.1		

Intersection Summary		
HCM 2010 Ctrl Delay		38.0
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	79	426	42	0	257	0	1189	24	170	1068	0
Future Volume (veh/h)	87	79	426	42	0	257	0	1189	24	170	1068	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	0	1863	0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	95	86	463	46	0	279	0	1213	24	185	1161	0
Adj No. of Lanes	0	1	1	1	0	1	0	3	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	317	287	528	0	0	0	0	1688	33	233	1873	0
Arrive On Green	0.33	0.33	0.33	0.00	0.00	0.00	0.00	0.33	0.33	0.13	0.53	0.00
Sat Flow, veh/h	953	862	1583		0		0	5301	102	1774	3632	0
Grp Volume(v), veh/h	181	0	463		0.0		0	801	436	185	1161	0
Grp Sat Flow(s),veh/h/ln	1815	0	1583				0	1695	1845	1774	1770	0
Q Serve(g_s), s	4.3	0.0	16.0				0.0	12.1	12.1	5.9	13.4	0.0
Cycle Q Clear(g_c), s	4.3	0.0	16.0				0.0	12.1	12.1	5.9	13.4	0.0
Prop In Lane	0.52		1.00				0.00		0.06	1.00		0.00
Lane Grp Cap(c), veh/h	605	0	528				0	1114	606	233	1873	0
V/C Ratio(X)	0.30	0.00	0.88				0.00	0.72	0.72	0.79	0.62	0.00
Avail Cap(c_a), veh/h	718	0	626				0	1341	730	366	2374	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.4	0.0	18.3				0.0	17.1	17.1	24.5	9.6	0.0
Incr Delay (d2), s/veh	0.3	0.0	11.9				0.0	1.5	2.7	6.2	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	8.7				0.0	5.8	6.5	3.3	6.5	0.0
LnGrp Delay(d),s/veh	14.6	0.0	30.1				0.0	18.7	19.9	30.7	9.9	0.0
LnGrp LOS	B		C					B	B	C	A	
Approach Vol, veh/h		644						1237			1346	
Approach Delay, s/veh		25.8						19.1			12.8	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		23.4		34.8			11.6	23.1
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0
Max Green Setting (Gmax), s		23.0		39.0			12.0	23.0
Max Q Clear Time (g_c+I1), s		18.0		15.4			7.9	14.1
Green Ext Time (p_c), s		1.4		9.1			0.2	5.0

Intersection Summary		
HCM 2010 Ctrl Delay		17.8
HCM 2010 LOS		B

Intersection	
Int Delay, s/veh	1072.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	74	984	79	167	470	137	92	13	172	98	19	31
Future Vol, veh/h	74	984	79	167	470	137	92	13	172	98	19	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	94	94	94	98	98	98	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	80	1070	86	178	500	146	94	13	176	107	21	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	646	0	0	1156	0	0	2230	2275	1113	2297	2245	573
Stage 1	-	-	-	-	-	-	1273	1273	-	929	929	-
Stage 2	-	-	-	-	-	-	957	1002	-	1368	1316	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	939	-	-	604	-	-	~ 31	40	254	~ 27	42	519
Stage 1	-	-	-	-	-	-	205	238	-	321	346	-
Stage 2	-	-	-	-	-	-	310	320	-	181	227	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	939	-	-	604	-	-	~ 8	26	254	~ 4	27	519
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 8	26	-	~ 4	27	-
Stage 1	-	-	-	-	-	-	188	218	-	294	244	-
Stage 2	-	-	-	-	-	-	187	226	-	~ 48	208	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	2.9	$ 2195	$ 12813.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	9	254	939	-	-	604	-	-	6
HCM Lane V/C Ratio	11.905	0.691	0.086	-	-	0.294	-	-	26.812
HCM Control Delay (s)	$ 5715.6	45.8	9.2	-	-	13.4	-	$	12813.2
HCM Lane LOS	F	E	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	15	4.6	0.3	-	-	1.2	-	-	22.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	937	2169	141	392	3	278	23	194	8	40	15
Future Volume (veh/h)	35	937	2169	141	392	3	278	23	194	8	40	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	38	1018	0	153	426	3	320	0	0	9	43	16
Adj No. of Lanes	1	1	1	1	1	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	1071	911	173	1193	8	399	0	178	14	66	24
Arrive On Green	0.03	0.58	0.00	0.10	0.65	0.65	0.11	0.00	0.00	0.06	0.06	0.06
Sat Flow, veh/h	1774	1863	1583	1774	1847	13	3548	0	1583	235	1124	418
Grp Volume(v), veh/h	38	1018	0	153	0	429	320	0	0	68	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1860	1774	0	1583	1777	0	0
Q Serve(g_s), s	2.2	52.5	0.0	8.7	0.0	10.9	9.0	0.0	0.0	3.8	0.0	0.0
Cycle Q Clear(g_c), s	2.2	52.5	0.0	8.7	0.0	10.9	9.0	0.0	0.0	3.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.13		0.24
Lane Grp Cap(c), veh/h	48	1071	911	173	0	1201	399	0	178	104	0	0
V/C Ratio(X)	0.79	0.95	0.00	0.88	0.00	0.36	0.80	0.00	0.00	0.65	0.00	0.00
Avail Cap(c_a), veh/h	104	1127	958	173	0	1201	554	0	247	278	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.6	20.4	0.0	45.7	0.0	8.4	44.3	0.0	0.0	47.2	0.0	0.0
Incr Delay (d2), s/veh	24.6	15.9	0.0	37.6	0.0	0.2	5.8	0.0	0.0	6.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	31.3	0.0	6.1	0.0	5.5	4.7	0.0	0.0	2.1	0.0	0.0
LnGrp Delay(d),s/veh	74.1	36.3	0.0	83.2	0.0	8.5	50.1	0.0	0.0	54.0	0.0	0.0
LnGrp LOS	E	D		F		A	D			D		
Approach Vol, veh/h		1056			582			320			68	
Approach Delay, s/veh		37.7			28.2			50.1			54.0	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		15.5	14.0	62.9		10.0	6.8	70.2
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		16.0	10.0	62.0		16.0	6.0	66.0
Max Q Clear Time (g_c+I1), s		11.0	10.7	54.5		5.8	4.2	12.9
Green Ext Time (p_c), s		0.5	0.0	4.5		0.2	0.0	3.0

Intersection Summary	
HCM 2010 Ctrl Delay	37.4
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	1856	415	295	375	5	853	10	1310	32	2	15
Future Volume (veh/h)	28	1856	415	295	375	5	853	10	1310	32	2	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	30	2017	0	321	408	5	935	0	1424	35	2	16
Adj No. of Lanes	1	2	1	1	2	0	2	0	2	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	1486	665	225	1880	23	852	0	1161	121	7	55
Arrive On Green	0.02	0.42	0.00	0.13	0.53	0.53	0.24	0.00	0.24	0.11	0.11	0.11
Sat Flow, veh/h	1774	3539	1583	1774	3581	44	3548	0	3167	1132	65	518
Grp Volume(v), veh/h	30	2017	0	321	201	212	935	0	1424	53	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1855	1774	0	1583	1715	0	0
Q Serve(g_s), s	2.5	63.0	0.0	19.0	9.2	9.2	36.0	0.0	36.0	4.3	0.0	0.0
Cycle Q Clear(g_c), s	2.5	63.0	0.0	19.0	9.2	9.2	36.0	0.0	36.0	4.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	0.66		0.30
Lane Grp Cap(c), veh/h	38	1486	665	225	929	974	852	0	1161	183	0	0
V/C Ratio(X)	0.79	1.36	0.00	1.43	0.22	0.22	1.10	0.00	1.23	0.29	0.00	0.00
Avail Cap(c_a), veh/h	71	1486	665	225	929	974	852	0	1161	183	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	73.0	43.5	0.0	65.5	19.1	19.1	57.0	0.0	47.5	61.8	0.0	0.0
Incr Delay (d2), s/veh	28.7	165.1	0.0	216.6	0.1	0.1	61.2	0.0	109.7	4.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	64.8	0.0	22.8	4.5	4.7	24.9	0.0	41.7	2.2	0.0	0.0
LnGrp Delay(d),s/veh	101.7	208.6	0.0	282.1	19.2	19.2	118.2	0.0	157.2	65.7	0.0	0.0
LnGrp LOS	F	F		F	B	B	F		F	E		
Approach Vol, veh/h		2047			734			2359			53	
Approach Delay, s/veh		207.0			134.2			141.7			65.7	
Approach LOS		F			F			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		40.0	23.0	67.0		20.0	7.2	82.8
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		36.0	19.0	63.0		16.0	6.0	76.0
Max Q Clear Time (g_c+I1), s		38.0	21.0	65.0		6.3	4.5	11.2
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	165.6
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	11335	11328	11251	11692	11517	11420
Vehs Exited	10671	10674	10577	11087	10797	10761
Starting Vehs	656	649	660	688	710	665
Ending Vehs	1320	1303	1334	1293	1430	1330
Travel Distance (mi)	8369	8422	8490	8614	8428	8465
Travel Time (hr)	5704.6	5499.9	5879.6	5283.3	5371.3	5547.8
Total Delay (hr)	5432.5	5227.5	5604.4	5004.4	5098.4	5273.4
Total Stops	20087	21441	20386	22646	22153	21347
Fuel Used (gal)	1522.7	1480.1	1565.1	1436.5	1450.2	1490.9

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	11335	11328	11251	11692	11517	11420
Vehs Exited	10671	10674	10577	11087	10797	10761
Starting Vehs	656	649	660	688	710	665
Ending Vehs	1320	1303	1334	1293	1430	1330
Travel Distance (mi)	8369	8422	8490	8614	8428	8465
Travel Time (hr)	5704.6	5499.9	5879.6	5283.3	5371.3	5547.8
Total Delay (hr)	5432.5	5227.5	5604.4	5004.4	5098.4	5273.4
Total Stops	20087	21441	20386	22646	22153	21347
Fuel Used (gal)	1522.7	1480.1	1565.1	1436.5	1450.2	1490.9

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Old Tunnel Road	7	164.3	1519.5	0.1	2
SR 24 WB On Ramp	6	39.4	45.3	0.1	5
	17	26.2	43.2	0.1	7
	16	1.2	9.6	0.1	26
	15	1.7	10.6	0.1	35
Acalanes Avenue	14	11.6	20.0	0.1	11
	11	18.8	24.3	0.1	8
Stanley Boulevard	5	46.8	53.1	0.1	5
School Dwy.	20	4.8	11.0	0.1	20
School Dwy.	19	4.8	18.6	0.1	26
	18	0.9	6.2	0.1	35
	39	0.6	10.2	0.1	32
Quandt Road	4	4.9	15.7	0.1	27
Reliez Valle Road	3	3.3	16.1	0.1	32
	58	0.8	8.8	0.1	37
Greenvalley Drive	2	3.8	24.8	0.2	34
	22	1.7	17.4	0.2	36
Rancho View Drive	1	2.9	22.2	0.2	36
Total		338.7	1876.4	1.9	13

Arterial Level of Service: SB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Rancho View Drive	1	2.7	19.2	0.2	31
	22	8.3	30.7	0.2	26
Greenvalley Drive	2	27.7	44.6	0.2	14
	58	109.9	133.1	0.2	6
Reliez Valle Road	3	78.1	140.9	0.1	4
Springhill Road	4	102.1	171.6	0.1	4
	39	87.0	99.1	0.1	4
	18	87.9	121.7	0.1	3
School Dwy.	19	51.0	57.2	0.1	4
School Dwy.	20	139.9	153.3	0.1	3
Deer Hill Road	5	39.0	44.7	0.1	5
	11	2.9	10.2	0.1	24
Acalanes Avenue	14	2.1	7.5	0.1	26
	15	5.0	11.6	0.1	19
	16	4.7	13.2	0.1	28
	17	3.9	12.6	0.1	20
Mt. Diablo Boulevard	6	19.4	25.7	0.1	9
SR 24 EB Off Ramp	7	22.2	28.6	0.1	7
Total		793.8	1125.5	2.0	7

Appendix F – Level of Service Worksheets: Cumulative Year 2035 plus Project Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	55	0	0	0	24	854	0	0	2146	14
Future Volume (veh/h)	0	0	55	0	0	0	24	854	0	0	2146	14
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	0	1863	1900
Adj Flow Rate, veh/h	0	0	60	0	0	0	26	928	0	0	2333	15
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	75	0	88	0	290	3017	0	0	2283	15
Arrive On Green	0.00	0.00	0.05	0.00	0.00	0.00	0.16	0.85	0.00	0.00	0.63	0.63
Sat Flow, veh/h	0	0	1583	0	1863	0	1774	3632	0	0	3698	23
Grp Volume(v), veh/h	0	0	60	0	0	0	26	928	0	0	1144	1204
Grp Sat Flow(s),veh/h/ln	0	0	1583	0	1863	0	1774	1770	0	0	1770	1859
Q Serve(g_s), s	0.0	0.0	3.4	0.0	0.0	0.0	1.1	4.7	0.0	0.0	57.0	57.0
Cycle Q Clear(g_c), s	0.0	0.0	3.4	0.0	0.0	0.0	1.1	4.7	0.0	0.0	57.0	57.0
Prop In Lane	0.00		1.00	0.00		0.00	1.00		0.00	0.00		0.01
Lane Grp Cap(c), veh/h	0	0	75	0	88	0	290	3017	0	0	1121	1177
V/C Ratio(X)	0.00	0.00	0.80	0.00	0.00	0.00	0.09	0.31	0.00	0.00	1.02	1.02
Avail Cap(c_a), veh/h	0	0	281	0	331	0	290	3017	0	0	1121	1177
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	42.4	0.0	0.0	0.0	31.9	1.3	0.0	0.0	16.5	16.5
Incr Delay (d2), s/veh	0.0	0.0	13.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	32.2	32.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.8	0.0	0.0	0.0	0.6	2.3	0.0	0.0	37.4	39.3
LnGrp Delay(d),s/veh	0.0	0.0	55.7	0.0	0.0	0.0	32.0	1.6	0.0	0.0	48.7	48.7
LnGrp LOS			E				C	A			F	F
Approach Vol, veh/h		60			0			954			2348	
Approach Delay, s/veh		55.7			0.0			2.4			48.7	
Approach LOS		E						A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		81.7		8.3	19.7	62.0		8.3
Change Period (Y+Rc), s		5.0		4.0	5.0	* 5		4.0
Max Green Setting (Gmax), s		65.0		16.0	4.0	* 57		16.0
Max Q Clear Time (g_c+I1), s		6.7		0.0	3.1	59.0		5.4
Green Ext Time (p_c), s		11.7		0.0	0.0	0.0		0.1

Intersection Summary		
HCM 2010 Ctrl Delay		35.7
HCM 2010 LOS		D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	8	27	0	14	0	959	19	11	2387	2
Future Volume (veh/h)	3	0	8	27	0	14	0	959	19	11	2387	2
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	3	0	9	29	0	0	0	1009	0	12	2539	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	41	3	34	91	0	42	1	3079	1377	19	3218	1440
Arrive On Green	0.03	0.00	0.03	0.03	0.00	0.00	0.00	0.87	0.00	0.01	0.91	0.00
Sat Flow, veh/h	317	108	1274	1501	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	12	0	0	29	0	0	0	1009	0	12	2539	0
Grp Sat Flow(s),veh/h/ln	1698	0	0	1501	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.0	1.6	0.0	0.0	0.0	7.3	0.0	0.9	32.3	0.0
Cycle Q Clear(g_c), s	1.0	0.0	0.0	2.6	0.0	0.0	0.0	7.3	0.0	0.9	32.3	0.0
Prop In Lane	0.25		0.75	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	0	0	91	0	42	1	3079	1377	19	3218	1440
V/C Ratio(X)	0.16	0.00	0.00	0.32	0.00	0.00	0.00	0.33	0.00	0.63	0.79	0.00
Avail Cap(c_a), veh/h	322	0	0	314	0	294	51	3079	1377	51	3218	1440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	66.8	0.0	0.0	67.5	0.0	0.0	0.0	1.7	0.0	69.0	2.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.7	0.0	0.0	0.0	0.3	0.0	12.4	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	1.1	0.0	0.0	0.0	3.6	0.0	0.5	15.7	0.0
LnGrp Delay(d),s/veh	67.5	0.0	0.0	68.3	0.0	0.0	0.0	1.9	0.0	81.3	4.1	0.0
LnGrp LOS	E			E				A		F	A	
Approach Vol, veh/h		12			29			1009			2551	
Approach Delay, s/veh		67.5			68.3			1.9			4.5	
Approach LOS		E			E			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	126.8		7.7	0.0	132.3		7.7
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	4.6	97.0		26.0	4.0	97.0		26.0
Max Q Clear Time (g_c+I1), s	2.9	9.3		4.6	0.0	34.3		3.0
Green Ext Time (p_c), s	0.0	13.7		0.0	0.0	55.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	4.5
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	360	151	960	2537	16
Future Volume (veh/h)	35	360	151	960	2537	16
Number	3	18	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	38	0	164	1043	2758	17
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	49	44	130	3229	2875	1286
Arrive On Green	0.03	0.00	0.07	0.91	0.81	0.81
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	38	0	164	1043	2758	17
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	3.2	0.0	11.0	5.5	99.4	0.3
Cycle Q Clear(g_c), s	3.2	0.0	11.0	5.5	99.4	0.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	49	44	130	3229	2875	1286
V/C Ratio(X)	0.77	0.00	1.26	0.32	0.96	0.01
Avail Cap(c_a), veh/h	272	243	130	3229	2875	1286
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.5	0.0	69.5	0.8	12.0	2.7
Incr Delay (d2), s/veh	17.1	0.0	164.9	0.3	9.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	11.3	2.7	51.4	0.1
LnGrp Delay(d),s/veh	89.6	0.0	234.4	1.1	21.6	2.7
LnGrp LOS	F		F	A	C	A
Approach Vol, veh/h	38			1207	2775	
Approach Delay, s/veh	89.6			32.8	21.5	
Approach LOS	F			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		141.8			15.0	126.8		8.2
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0
Max Green Setting (Gmax), s		118.0			11.0	103.0		23.0
Max Q Clear Time (g_c+I1), s		7.5			13.0	101.4		5.2
Green Ext Time (p_c), s		14.6			0.0	1.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	25.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	8	191	106	39	16	162	817	74	63	3003	114
Future Volume (veh/h)	93	8	191	106	39	16	162	817	74	63	3003	114
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1863	1520	1520	1520
Adj Flow Rate, veh/h	101	9	0	115	42	17	172	869	79	65	3096	118
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	12	183	169	47	19	114	2677	1198	78	2138	956
Arrive On Green	0.12	0.12	0.00	0.12	0.12	0.12	0.07	0.76	0.76	0.05	0.74	0.74
Sat Flow, veh/h	1186	106	1583	1116	408	165	1632	3539	1583	1447	2887	1292
Grp Volume(v), veh/h	110	0	0	174	0	0	172	869	79	65	3096	118
Grp Sat Flow(s),veh/h/ln	1292	0	1583	1689	0	0	1632	1770	1583	1447	1444	1292
Q Serve(g_s), s	0.0	0.0	0.0	2.5	0.0	0.0	10.5	11.9	1.9	6.7	111.1	3.9
Cycle Q Clear(g_c), s	12.5	0.0	0.0	15.0	0.0	0.0	10.5	11.9	1.9	6.7	111.1	3.9
Prop In Lane	0.92		1.00	0.66		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	195	0	183	235	0	0	114	2677	1198	78	2138	956
V/C Ratio(X)	0.56	0.00	0.00	0.74	0.00	0.00	1.51	0.32	0.07	0.83	1.45	0.12
Avail Cap(c_a), veh/h	265	0	264	312	0	0	114	2677	1198	140	2138	956
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.2	0.0	0.0	65.1	0.0	0.0	69.8	5.9	4.7	70.3	19.5	5.6
Incr Delay (d2), s/veh	0.9	0.0	0.0	3.9	0.0	0.0	267.4	0.3	0.1	8.2	204.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	0.0	7.4	0.0	0.0	13.2	5.9	0.9	2.8	104.3	1.4
LnGrp Delay(d),s/veh	65.1	0.0	0.0	69.1	0.0	0.0	337.1	6.2	4.8	78.4	223.8	5.8
LnGrp LOS	E			E			F	A	A	E	F	A
Approach Vol, veh/h		110			174			1120			3279	
Approach Delay, s/veh		65.1			69.1			56.9			213.1	
Approach LOS		E			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.6	117.6		20.8	14.0	115.2		20.8
Change Period (Y+Rc), s	3.5	4.1		3.5	3.5	4.1		3.5
Max Green Setting (Gmax), s	14.5	99.4		25.0	10.5	103.4		25.0
Max Q Clear Time (g_c+I1), s	13.7	13.9		17.0	12.5	113.1		14.5
Green Ext Time (p_c), s	0.0	11.6		0.4	0.0	0.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	166.9
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	269	87	88	380	163	68	246	915	291	198	2281	888
Future Volume (veh/h)	269	87	88	380	163	68	246	915	291	198	2281	888
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.91	1.00		0.92
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1471	1471	1471
Adj Flow Rate, veh/h	292	95	96	295	342	74	267	995	316	215	2479	965
Adj No. of Lanes	2	1	0	1	1	1	1	2	1	1	3	1
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	451	111	112	306	321	272	171	1464	596	232	1939	557
Arrive On Green	0.13	0.13	0.13	0.17	0.17	0.17	0.10	0.41	0.41	0.17	0.48	0.48
Sat Flow, veh/h	3442	849	858	1774	1863	1578	1774	3539	1442	1401	4015	1154
Grp Volume(v), veh/h	292	0	191	295	342	74	267	995	316	215	2479	965
Grp Sat Flow(s),veh/h/ln	1721	0	1707	1774	1863	1578	1774	1770	1442	1401	1338	1154
Q Serve(g_s), s	11.7	0.0	15.9	23.9	25.0	5.9	14.0	33.3	23.9	21.9	70.0	70.0
Cycle Q Clear(g_c), s	11.7	0.0	15.9	23.9	25.0	5.9	14.0	33.3	23.9	21.9	70.0	70.0
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	451	0	223	306	321	272	171	1464	596	232	1939	557
V/C Ratio(X)	0.65	0.00	0.85	0.96	1.06	0.27	1.56	0.68	0.53	0.93	1.28	1.73
Avail Cap(c_a), veh/h	593	0	294	306	321	272	171	1464	596	270	1939	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.8	0.0	61.7	59.6	60.0	52.1	65.5	34.7	31.9	59.6	37.5	37.5
Incr Delay (d2), s/veh	0.6	0.0	13.9	41.5	68.4	0.2	278.0	2.6	3.4	31.1	129.6	336.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	8.3	15.2	19.0	2.6	20.1	16.7	10.0	10.5	49.1	74.4
LnGrp Delay(d),s/veh	60.4	0.0	75.5	101.1	128.4	52.3	343.5	37.2	35.3	90.7	167.1	374.1
LnGrp LOS	E		E	F	F	D	F	D	D	F	F	F
Approach Vol, veh/h		483			711			1578			3659	
Approach Delay, s/veh		66.4			109.2			88.7			217.2	
Approach LOS		E			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	28.0	65.0		29.0	18.0	75.0		23.0
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	24.0	50.0		25.0	14.0	64.0		25.0
Max Q Clear Time (g_c+I1), s	23.9	35.3		27.0	16.0	72.0		17.9
Green Ext Time (p_c), s	0.1	7.1		0.0	0.0	0.0		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	162.4
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	341	347	97	0	0	0	360	1112	637	0	811	849
Future Volume (veh/h)	341	347	97	0	0	0	360	1112	637	0	811	849
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				1863	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	371	377	105				375	1158	664	0	863	0
Adj No. of Lanes	1	2	0				1	2	1	0	2	1
Peak Hour Factor	0.92	0.92	0.92				0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				2	2	2	0	2	2
Cap, veh/h	424	656	180				407	2320	1038	0	1351	605
Arrive On Green	0.24	0.24	0.24				0.23	0.66	0.66	0.00	0.38	0.00
Sat Flow, veh/h	1774	2744	755				1774	3539	1583	0	3632	1583
Grp Volume(v), veh/h	371	242	240				375	1158	664	0	863	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1729				1774	1770	1583	0	1770	1583
Q Serve(g_s), s	18.1	10.8	11.1				18.6	15.1	22.4	0.0	17.9	0.0
Cycle Q Clear(g_c), s	18.1	10.8	11.1				18.6	15.1	22.4	0.0	17.9	0.0
Prop In Lane	1.00		0.44				1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	424	423	413				407	2320	1038	0	1351	605
V/C Ratio(X)	0.88	0.57	0.58				0.92	0.50	0.64	0.00	0.64	0.00
Avail Cap(c_a), veh/h	503	501	490				414	2320	1038	0	1351	605
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.30	0.30	0.30	0.00	1.00	0.00
Uniform Delay (d), s/veh	33.0	30.2	30.3				33.9	7.9	9.2	0.0	22.7	0.0
Incr Delay (d2), s/veh	12.6	0.5	0.5				10.0	0.2	0.9	0.0	2.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	5.4	5.3				10.2	7.3	9.9	0.0	9.2	0.0
LnGrp Delay(d),s/veh	45.6	30.6	30.8				43.9	8.2	10.1	0.0	25.1	0.0
LnGrp LOS	D	C	C				D	A	B		C	
Approach Vol, veh/h		853						2197			863	
Approach Delay, s/veh		37.2						14.9			25.1	
Approach LOS		D						B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		64.0		26.0	24.6	39.4		
Change Period (Y+Rc), s		5.0		4.5	4.0	5.0		
Max Green Setting (Gmax), s		55.0		25.5	21.0	30.0		
Max Q Clear Time (g_c+I1), s		24.4		20.1	20.6	19.9		
Green Ext Time (p_c), s		19.5		1.4	0.0	5.1		

Intersection Summary		
HCM 2010 Ctrl Delay		22.0
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	51	212	19	0	219	0	1646	35	129	741	0
Future Volume (veh/h)	26	51	212	19	0	219	0	1646	35	129	741	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	0	1863	0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	28	55	230	21	0	238	0	1697	36	134	772	0
Adj No. of Lanes	0	1	1	1	0	1	0	3	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.97	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	122	239	312	0	0	0	0	2175	46	170	2176	0
Arrive On Green	0.20	0.20	0.20	0.00	0.00	0.00	0.00	0.42	0.42	0.10	0.61	0.00
Sat Flow, veh/h	618	1214	1583		0		0	5293	109	1774	3632	0
Grp Volume(v), veh/h	83	0	230		0.0		0	1122	611	134	772	0
Grp Sat Flow(s),veh/h/ln	1832	0	1583				0	1695	1844	1774	1770	0
Q Serve(g_s), s	1.6	0.0	5.8				0.0	12.1	12.1	3.1	4.6	0.0
Cycle Q Clear(g_c), s	1.6	0.0	5.8				0.0	12.1	12.1	3.1	4.6	0.0
Prop In Lane	0.34		1.00				0.00		0.06	1.00		0.00
Lane Grp Cap(c), veh/h	361	0	312				0	1439	782	170	2176	0
V/C Ratio(X)	0.23	0.00	0.74				0.00	0.78	0.78	0.79	0.35	0.00
Avail Cap(c_a), veh/h	690	0	597				0	1517	825	209	2334	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.3	0.0	16.0				0.0	10.5	10.5	18.8	4.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	3.4				0.0	2.6	4.6	14.7	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	2.8				0.0	6.1	7.1	2.2	2.2	0.0
LnGrp Delay(d),s/veh	14.7	0.0	19.4				0.0	13.1	15.1	33.5	4.1	0.0
LnGrp LOS	B		B					B	B	C	A	
Approach Vol, veh/h		313						1733			906	
Approach Delay, s/veh		18.2						13.8			8.5	
Approach LOS		B						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		12.4		30.1			8.1	22.0
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0
Max Green Setting (Gmax), s		16.0		28.0			5.0	19.0
Max Q Clear Time (g_c+I1), s		7.8		6.6			5.1	14.1
Green Ext Time (p_c), s		0.8		5.3			0.0	3.9

Intersection Summary	
HCM 2010 Ctrl Delay	12.6
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	770.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	42	327	77	277	1060	58	137	19	122	45	13	84
Future Vol, veh/h	42	327	77	277	1060	58	137	19	122	45	13	84
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	94	94	94	98	98	98	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	46	355	84	295	1128	62	140	19	124	49	14	91

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1190	0	0	439	0	0	2291	2269	397	2310	2280	1159
Stage 1	-	-	-	-	-	-	489	489	-	1749	1749	-
Stage 2	-	-	-	-	-	-	1802	1780	-	561	531	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	587	-	-	1121	-	-	~ 28	40	652	~ 27	40	238
Stage 1	-	-	-	-	-	-	561	549	-	109	140	-
Stage 2	-	-	-	-	-	-	~ 102	135	-	512	526	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	587	-	-	1121	-	-	~ 8	27	652	~ 7	27	238
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 8	27	-	~ 7	27	-
Stage 1	-	-	-	-	-	-	517	506	-	100	103	-
Stage 2	-	-	-	-	-	-	~ 40	99	-	367	485	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	1.9	$ 4672	$ 3402.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	9	652	587	-	-	1121	-	-	20
HCM Lane V/C Ratio	17.687	0.191	0.078	-	-	0.263	-	-	7.717
HCM Control Delay (s)	$ 8316.6	11.8	11.6	-	-	9.4	-	-	$ 3402.1
HCM Lane LOS	F	B	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	21.5	0.7	0.3	-	-	1.1	-	-	19.7

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	404	1506	236	766	5	437	22	136	13	35	44
Future Volume (veh/h)	42	404	1506	236	766	5	437	22	136	13	35	44
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	46	439	0	257	833	5	492	0	0	14	38	48
Adj No. of Lanes	1	1	1	1	1	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	650	552	303	900	5	610	0	272	21	57	72
Arrive On Green	0.03	0.35	0.00	0.17	0.49	0.49	0.17	0.00	0.00	0.09	0.09	0.09
Sat Flow, veh/h	1774	1863	1583	1774	1850	11	3548	0	1583	239	648	819
Grp Volume(v), veh/h	46	439	0	257	0	838	492	0	0	100	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1861	1774	0	1583	1706	0	0
Q Serve(g_s), s	1.9	14.6	0.0	10.2	0.0	30.6	9.7	0.0	0.0	4.1	0.0	0.0
Cycle Q Clear(g_c), s	1.9	14.6	0.0	10.2	0.0	30.6	9.7	0.0	0.0	4.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.14		0.48
Lane Grp Cap(c), veh/h	59	650	552	303	0	905	610	0	272	151	0	0
V/C Ratio(X)	0.78	0.68	0.00	0.85	0.00	0.93	0.81	0.00	0.00	0.66	0.00	0.00
Avail Cap(c_a), veh/h	98	667	567	391	0	974	782	0	349	376	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	34.8	20.1	0.0	29.2	0.0	17.4	28.9	0.0	0.0	32.1	0.0	0.0
Incr Delay (d2), s/veh	19.4	2.6	0.0	12.9	0.0	13.8	4.9	0.0	0.0	4.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	7.9	0.0	6.1	0.0	19.1	5.1	0.0	0.0	2.2	0.0	0.0
LnGrp Delay(d),s/veh	54.2	22.8	0.0	42.1	0.0	31.2	33.8	0.0	0.0	37.0	0.0	0.0
LnGrp LOS	D	C		D		C	C			D		
Approach Vol, veh/h		485			1095			492			100	
Approach Delay, s/veh		25.8			33.8			33.8			37.0	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		16.5	16.4	29.3		10.4	6.4	39.3
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		16.0	16.0	26.0		16.0	4.0	38.0
Max Q Clear Time (g_c+I1), s		11.7	12.2	16.6		6.1	3.9	32.6
Green Ext Time (p_c), s		0.8	0.3	1.9		0.3	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	32.1
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

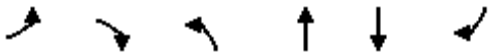
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	906	475	491	815	5	1476	13	899	30	10	15
Future Volume (veh/h)	2	906	475	491	815	5	1476	13	899	30	10	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	2	985	516	534	886	5	1564	0	946	33	11	16
Adj No. of Lanes	1	2	1	1	2	0	2	0	2	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	755	338	367	1508	9	1301	0	1816	102	34	49
Arrive On Green	0.00	0.21	0.21	0.21	0.42	0.42	0.37	0.00	0.37	0.11	0.11	0.11
Sat Flow, veh/h	1774	3539	1583	1774	3608	20	3548	0	3167	953	318	462
Grp Volume(v), veh/h	2	985	516	534	435	456	1564	0	946	60	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1859	1774	0	1583	1733	0	0
Q Serve(g_s), s	0.2	32.0	32.0	31.0	28.4	28.4	55.0	0.0	27.3	4.8	0.0	0.0
Cycle Q Clear(g_c), s	0.2	32.0	32.0	31.0	28.4	28.4	55.0	0.0	27.3	4.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.55		0.27
Lane Grp Cap(c), veh/h	4	755	338	367	739	777	1301	0	1816	185	0	0
V/C Ratio(X)	0.53	1.30	1.53	1.46	0.59	0.59	1.20	0.00	0.52	0.32	0.00	0.00
Avail Cap(c_a), veh/h	47	755	338	367	739	777	1301	0	1816	185	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	74.8	59.0	59.0	59.5	33.7	33.7	47.5	0.0	19.5	62.0	0.0	0.0
Incr Delay (d2), s/veh	82.9	146.6	252.0	220.0	1.2	1.2	98.6	0.0	1.1	4.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	31.0	37.6	37.6	14.1	14.8	44.7	0.0	12.1	2.5	0.0	0.0
LnGrp Delay(d),s/veh	157.7	205.6	311.0	279.5	34.9	34.8	146.1	0.0	20.5	66.6	0.0	0.0
LnGrp LOS	F	F	F	F	C	C	F		C	E		
Approach Vol, veh/h		1503			1425			2510			60	
Approach Delay, s/veh		241.7			126.6			98.8			66.6	
Approach LOS		F			F			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		59.0	35.0	36.0		20.0	4.3	66.7
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		55.0	31.0	32.0		16.0	4.0	59.0
Max Q Clear Time (g_c+I1), s		57.0	33.0	34.0		6.8	2.2	30.4
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	6.4

Intersection Summary	
HCM 2010 Ctrl Delay	144.7
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	77	0	1525	2729	4
Future Volume (Veh/h)	0	77	0	1525	2729	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	84	0	1658	2966	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					352	
pX, platoon unblocked	0.58	0.58	0.58			
vC, conflicting volume	3380	989	2970			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2555	0	1841			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	100			
cM capacity (veh/h)	12	624	188			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	84	414	414	414	414	989	989	989	4
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	84	0	0	0	0	0	0	0	4
cSH	624	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.13	0.24	0.24	0.24	0.24	0.58	0.58	0.58	0.00
Queue Length 95th (ft)	12	0	0	0	0	0	0	0	0
Control Delay (s)	11.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B								
Approach Delay (s)	11.7	0.0				0.0			
Approach LOS	B								

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	64.2%	ICU Level of Service		C
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	489	0	24	1272	0	26
Future Vol, veh/h	489	0	24	1272	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	532	0	26	1383	0	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	532	0	1967	532
Stage 1	-	-	-	-	532	-
Stage 2	-	-	-	-	1435	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1036	-	69	547
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	219	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1036	-	67	547
Mov Cap-2 Maneuver	-	-	-	-	67	-
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	219	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	547	-	-	1036	-
HCM Lane V/C Ratio	0.052	-	-	0.025	-
HCM Control Delay (s)	11.9	-	-	8.6	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	489	5	0	1272	23	0
Future Vol, veh/h	489	5	0	1272	23	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	532	5	0	1383	25	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	537	0	1918	535
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	1383	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1031	-	74	545
Stage 1	-	-	-	-	587	-
Stage 2	-	-	-	-	233	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1031	-	74	545
Mov Cap-2 Maneuver	-	-	-	-	74	-
Stage 1	-	-	-	-	587	-
Stage 2	-	-	-	-	233	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	76.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	74	-	-	1031	-
HCM Lane V/C Ratio	0.338	-	-	-	-
HCM Control Delay (s)	76.7	-	-	0	-
HCM Lane LOS	F	-	-	A	-
HCM 95th %tile Q(veh)	1.3	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	327	77	277	1060	58	137	19	122	45	13	84
Future Volume (veh/h)	42	327	77	277	1060	58	137	19	122	45	13	84
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	46	355	84	295	1128	62	140	19	124	49	14	91
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.98	0.98	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	1008	239	653	1210	67	227	25	325	66	38	61
Arrive On Green	0.69	0.69	0.69	0.69	0.69	0.69	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	469	1457	345	946	1750	96	681	124	1583	23	183	298
Grp Volume(v), veh/h	46	0	439	295	0	1190	159	0	124	154	0	0
Grp Sat Flow(s),veh/h/ln	469	0	1802	946	0	1846	805	0	1583	503	0	0
Q Serve(g_s), s	7.4	0.0	7.7	14.4	0.0	43.6	0.0	0.0	5.3	0.8	0.0	0.0
Cycle Q Clear(g_c), s	50.9	0.0	7.7	22.1	0.0	43.6	15.2	0.0	5.3	16.0	0.0	0.0
Prop In Lane	1.00		0.19	1.00		0.05	0.88		1.00	0.32		0.59
Lane Grp Cap(c), veh/h	155	0	1247	653	0	1277	252	0	325	164	0	0
V/C Ratio(X)	0.30	0.00	0.35	0.45	0.00	0.93	0.63	0.00	0.38	0.94	0.00	0.00
Avail Cap(c_a), veh/h	167	0	1296	679	0	1327	252	0	325	164	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	32.5	0.0	4.9	9.4	0.0	10.4	30.5	0.0	26.7	30.9	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.2	0.5	0.0	11.7	5.0	0.0	0.7	51.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	3.8	3.8	0.0	25.6	3.7	0.0	2.4	5.6	0.0	0.0
LnGrp Delay(d),s/veh	33.5	0.0	5.1	9.9	0.0	22.1	35.4	0.0	27.4	82.8	0.0	0.0
LnGrp LOS	C		A	A		C	D		C	F		
Approach Vol, veh/h		485			1485			283			154	
Approach Delay, s/veh		7.8			19.7			31.9			82.8	
Approach LOS		A			B			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		57.9		20.0		57.9
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		56.0		16.0		56.0
Max Q Clear Time (g_c+I1), s		17.2		52.9		18.0		45.6
Green Ext Time (p_c), s		0.0		1.0		0.0		7.7

Intersection Summary	
HCM 2010 Ctrl Delay	22.7
HCM 2010 LOS	C

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	11142	11580	11397	11345	11193	11334
Vehs Exited	10699	11011	10962	10865	10693	10848
Starting Vehs	797	726	777	791	745	766
Ending Vehs	1240	1295	1212	1271	1245	1251
Travel Distance (mi)	7200	7355	7353	7200	7116	7245
Travel Time (hr)	4360.4	4251.4	4271.5	4265.3	4535.5	4336.8
Total Delay (hr)	4116.5	4003.2	4022.7	4021.3	4294.4	4091.6
Total Stops	22296	23011	21241	21045	22190	21958
Fuel Used (gal)	1188.9	1168.6	1172.9	1168.8	1226.2	1185.1

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	11142	11580	11397	11345	11193	11334
Vehs Exited	10699	11011	10962	10865	10693	10848
Starting Vehs	797	726	777	791	745	766
Ending Vehs	1240	1295	1212	1271	1245	1251
Travel Distance (mi)	7200	7355	7353	7200	7116	7245
Travel Time (hr)	4360.4	4251.4	4271.5	4265.3	4535.5	4336.8
Total Delay (hr)	4116.5	4003.2	4022.7	4021.3	4294.4	4091.6
Total Stops	22296	23011	21241	21045	22190	21958
Fuel Used (gal)	1188.9	1168.6	1172.9	1168.8	1226.2	1185.1

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Old Tunnel Road	7	117.6	2808.3	0.1	3
SR 24 WB On Ramp	6	27.6	47.2	0.1	6
	17	15.4	22.1	0.1	11
	16	1.3	9.6	0.1	26
	15	1.8	10.5	0.1	35
Acalanes Avenue	14	3.2	11.2	0.1	20
Proj. Driveway	11	7.3	12.7	0.1	15
Stanley Boulevard	5	23.7	30.2	0.1	8
School Dwy.	20	3.5	9.8	0.1	22
School Dwy.	19	13.4	27.1	0.1	18
	18	11.7	17.3	0.1	13
	39	40.9	50.3	0.1	7
Quandt Road	4	30.0	40.6	0.1	11
	37	1.2	7.6	0.1	34
Reliez Valle Road	3	1.0	7.0	0.1	39
	58	0.5	8.6	0.1	38
Greenvalley Drive	2	2.7	23.5	0.2	36
	22	1.3	17.0	0.2	37
Rancho View Drive	1	2.8	21.9	0.2	36
Total		306.8	3182.4	1.9	14

Arterial Level of Service: SB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Rancho View Drive	1	205.4	2083.8	0.2	3
	22	274.1	295.6	0.2	3
Greenvalley Drive	2	262.6	538.5	0.2	2
	58	332.4	354.4	0.2	2
Reliez Valle Road	3	144.9	533.1	0.1	2
	37	63.9	71.1	0.1	4
Springhill Road	4	73.1	308.9	0.1	3
	39	83.1	95.2	0.1	4
	18	63.9	277.3	0.1	5
School Dwy.	19	36.5	128.4	0.1	5
School Dwy.	20	60.5	74.1	0.1	7
Deer Hill Road	5	41.0	46.8	0.1	5
Proj. Driveway	11	2.3	9.5	0.1	25
Acalanes Avenue	14	1.1	6.6	0.1	29
	15	0.4	6.7	0.1	33
	16	2.8	11.3	0.1	33
	17	4.0	12.6	0.1	20
Mt. Diablo Boulevard	6	14.2	20.4	0.1	11
SR 24 EB Off Ramp	7	8.3	14.4	0.1	15
Total		1674.4	4888.8	2.0	4

Intersection: 1: Pleasant Hill Road & Rancho View Drive

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LTR	L	T	TR	T	TR
Maximum Queue (ft)	100	68	115	126	874	872
Average Queue (ft)	44	23	22	28	760	757
95th Queue (ft)	87	55	79	90	1148	1150
Link Distance (ft)	295		1099	1099	828	828
Upstream Blk Time (%)					85	85
Queuing Penalty (veh)					0	0
Storage Bay Dist (ft)		148				
Storage Blk Time (%)			0			
Queuing Penalty (veh)			0			

Intersection: 2: Pleasant Hill Road & Greenvalley Drive

Movement	EB	WB	WB	NB	NB	SB	SB	SB	SB	B22	B22
Directions Served	LTR	LT	R	T	T	L	T	T	R	T	T
Maximum Queue (ft)	52	99	39	124	138	101	961	963	13	1135	1139
Average Queue (ft)	12	31	3	25	28	12	904	906	0	1024	1024
95th Queue (ft)	39	74	27	84	92	69	1151	1145	9	1494	1493
Link Distance (ft)	541	522		1181	1181		851	851		1099	1099
Upstream Blk Time (%)							90	93		31	38
Queuing Penalty (veh)							1081	1112		373	454
Storage Bay Dist (ft)			75			95			50		
Storage Blk Time (%)		4	0	1	0		93	94	0		
Queuing Penalty (veh)		1	0	0	0		11	2	0		

Intersection: 3: Pleasant Hill Road & Reliez Valle Road

Movement	EB	EB	NB	NB	NB	SB	SB	SB	B58	B58
Directions Served	L	R	L	T	T	T	T	R	T	T
Maximum Queue (ft)	387	461	210	87	71	535	527	155	1232	1226
Average Queue (ft)	138	336	115	14	17	506	502	23	1194	1194
95th Queue (ft)	433	577	204	57	55	523	517	113	1267	1251
Link Distance (ft)	441	441		328	328	430	430		1181	1181
Upstream Blk Time (%)	9	39				92	99		38	48
Queuing Penalty (veh)	0	0				1183	1274		490	615
Storage Bay Dist (ft)			230					130		
Storage Blk Time (%)			1				98	0		
Queuing Penalty (veh)			5				17	0		

Intersection: 4: Pleasant Hill Road & Springhill Road/Quandt Road

Movement	EB	EB	WB	NB	NB	NB	NB	B39	B39	SB	SB	SB
Directions Served	LT	R	LTR	L	T	T	R	T	T	L	T	T
Maximum Queue (ft)	657	125	489	225	662	595	90	414	420	130	422	422
Average Queue (ft)	601	59	305	213	522	200	15	226	157	44	389	393
95th Queue (ft)	759	158	575	265	833	552	65	558	478	129	407	414
Link Distance (ft)	616		497		564	564		432	432		310	310
Upstream Blk Time (%)	88		19		58	1		25	6		74	88
Queuing Penalty (veh)	0		0		330	6		142	34		1165	1382
Storage Bay Dist (ft)		100		200			100			105		
Storage Blk Time (%)	97	3		83	0	3	0			0	65	74
Queuing Penalty (veh)	201	3		359	0	2	0			0	42	88

Intersection: 4: Pleasant Hill Road & Springhill Road/Quandt Road

Movement	SB	B37	B37	B37
Directions Served	R	T	T	
Maximum Queue (ft)	96	394	379	421
Average Queue (ft)	57	353	351	391
95th Queue (ft)	133	379	370	416
Link Distance (ft)		328	328	328
Upstream Blk Time (%)		30	59	84
Queuing Penalty (veh)		314	622	881
Storage Bay Dist (ft)	71			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	2			

Intersection: 5: Pleasant Hill Road & Deer Hill Road/Stanley Boulevard

Movement	EB	EB	EB	B27	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	L	TR	T	L	LT	R	L	T	T	R	L
Maximum Queue (ft)	98	100	186	413	210	545	531	380	306	330	135	200
Average Queue (ft)	62	85	165	215	124	522	421	305	182	203	55	89
95th Queue (ft)	112	120	208	450	259	533	732	423	283	311	107	177
Link Distance (ft)			100	382		504	504	279	279	279	279	
Upstream Blk Time (%)	1	8	52	5		93	35	48	1	1		
Queuing Penalty (veh)	0	0	290	29		0	0	199	2	6		
Storage Bay Dist (ft)	101	101			185							176
Storage Blk Time (%)	1	8	52		0	82						0
Queuing Penalty (veh)	2	15	151		0	169						2

Intersection: 5: Pleasant Hill Road & Deer Hill Road/Stanley Boulevard

Movement	SB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (ft)	300	259	317	75
Average Queue (ft)	185	226	302	66
95th Queue (ft)	323	258	311	98
Link Distance (ft)	229	229	229	
Upstream Blk Time (%)	7	4	46	
Queuing Penalty (veh)	86	51	556	
Storage Bay Dist (ft)				50
Storage Blk Time (%)	8		49	9
Queuing Penalty (veh)	18		471	73

Intersection: 6: Pleasant Hill Road & Mt. Diablo Boulevard/SR 24 WB On Ramp

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	T	T	R
Maximum Queue (ft)	307	363	320	249	272	274	75	169	163	160
Average Queue (ft)	281	265	165	132	108	240	67	82	87	48
95th Queue (ft)	359	454	297	220	244	290	99	145	145	131
Link Distance (ft)		325	325	241	241	241		150	150	150
Upstream Blk Time (%)	0	46	0	1	1	27		0	0	1
Queuing Penalty (veh)	0	0	0	4	9	178		3	3	3
Storage Bay Dist (ft)	282						50			
Storage Blk Time (%)	54	1				51	9			
Queuing Penalty (veh)	101	3				336	51			

Intersection: 7: Pleasant Hill Road & SR 24 EB Off Ramp/Old Tunnel Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	R	T	T	TR	L	T	T
Maximum Queue (ft)	99	101	506	502	585	604	643	113	137	139
Average Queue (ft)	46	52	374	445	103	355	611	48	46	56
95th Queue (ft)	87	84	710	622	378	762	628	96	110	118
Link Distance (ft)	584	584	476	476	592	592	592		241	241
Upstream Blk Time (%)			68	77	0	9	99			
Queuing Penalty (veh)			0	0	0	0	0			
Storage Bay Dist (ft)								100		
Storage Blk Time (%)								1	1	
Queuing Penalty (veh)								5	1	

Intersection: 8: Brown Avenue & Deer Hill Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (ft)	36	17	70	134	212	90	160
Average Queue (ft)	9	1	23	7	89	40	66
95th Queue (ft)	31	7	53	67	168	67	129
Link Distance (ft)		1073		1894	461	461	384
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	50		50				
Storage Blk Time (%)	0	0	1	1			
Queuing Penalty (veh)	1	0	12	3			

Intersection: 9: First Street/Sierra Vista Way & Deer Hill Road

Movement	EB	EB	EB	WB	WB	B29	NB	NB	NB	SB
Directions Served	L	T	R	L	TR	T	L	LT	R	LTR
Maximum Queue (ft)	93	346	240	174	727	804	325	310	145	113
Average Queue (ft)	24	168	192	130	408	157	269	207	55	56
95th Queue (ft)	68	346	291	212	821	670	363	354	170	103
Link Distance (ft)		325			656	1073	285	285		107
Upstream Blk Time (%)		1			19	1	49	6		3
Queuing Penalty (veh)		19			256	10	0	0		0
Storage Bay Dist (ft)	71		215	150					120	
Storage Blk Time (%)	0	15	10	3	39			23	0	
Queuing Penalty (veh)	2	253	48	23	101			35	0	

Intersection: 10: SR 24 WB Ramps/Laurel Drive & Deer Hill Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	TR	L	LT	R	R	LTR
Maximum Queue (ft)	48	479	479	165	200	349	343	317	319	317	310	106
Average Queue (ft)	2	463	464	94	197	328	187	290	289	265	217	50
95th Queue (ft)	25	480	475	197	209	385	342	303	303	343	389	97
Link Distance (ft)		448	448			325	325	273	273	273	273	294
Upstream Blk Time (%)		86	84			36	0	59	56	19	13	
Queuing Penalty (veh)		0	0			243	3	0	0	0	0	
Storage Bay Dist (ft)	95			140	175							
Storage Blk Time (%)		92	24	2	63	4						
Queuing Penalty (veh)		2	123	8	281	21						

Intersection: 11: Pleasant Hill Road & Proj. Driveway

Movement	EB	NB	NB	NB	SB
Directions Served	R	T	T	T	T
Maximum Queue (ft)	87	235	171	132	5
Average Queue (ft)	33	88	20	6	0
95th Queue (ft)	67	280	127	65	3
Link Distance (ft)	174	226	226	226	279
Upstream Blk Time (%)		14	1	0	
Queuing Penalty (veh)		62	4	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 12: Proj. Driveway & Deer Hill Road

Movement	EB	WB	NB
Directions Served	TR	L	LR
Maximum Queue (ft)	136	28	69
Average Queue (ft)	16	5	19
95th Queue (ft)	112	23	51
Link Distance (ft)	1063		144
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: Proj. Driveway & Deer Hill Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	64
Average Queue (ft)	20
95th Queue (ft)	51
Link Distance (ft)	266
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: Pleasant Hill Road & Acalanes Avenue

Movement	WB	NB	NB	NB	SB
Directions Served	R	T	T	TR	T
Maximum Queue (ft)	100	99	50	101	16
Average Queue (ft)	37	15	2	4	1
95th Queue (ft)	75	87	28	65	9
Link Distance (ft)	167	282	282	282	226
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 15: Pleasant Hill Road

Movement	WB	NB	NB	SB
Directions Served	R	T	T	R
Maximum Queue (ft)	590	29	89	42
Average Queue (ft)	372	2	28	2
95th Queue (ft)	665	16	69	18
Link Distance (ft)	574	244	244	282
Upstream Blk Time (%)	20			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: Pleasant Hill Road

Movement	EB	NB	SB
Directions Served	R	R	T
Maximum Queue (ft)	568	88	144
Average Queue (ft)	528	25	37
95th Queue (ft)	549	68	102
Link Distance (ft)	505	288	244
Upstream Blk Time (%)	99		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: Pleasant Hill Road

Movement	WB	NB	NB	SB	SB	SB
Directions Served	R	T	T	T	T	TR
Maximum Queue (ft)	500	167	188	27	16	124
Average Queue (ft)	311	44	137	1	1	17
95th Queue (ft)	549	145	224	11	8	73
Link Distance (ft)	458	150	150	288	288	288
Upstream Blk Time (%)	14	3	29			
Queuing Penalty (veh)	0	20	223			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 18: Pleasant Hill Road

Movement	WB	NB	NB	SB	SB	B39	B39
Directions Served	R	T	TR	T	T	T	T
Maximum Queue (ft)	121	209	200	528	545	605	600
Average Queue (ft)	81	76	55	481	512	579	577
95th Queue (ft)	114	257	219	577	533	613	593
Link Distance (ft)	82	266	266	432	432	564	564
Upstream Blk Time (%)	42	13	2	28	92	19	23
Queuing Penalty (veh)	0	76	9	487	1572	319	397
Storage Bay Dist (ft)							
Storage Blk Time (%)				13			
Queuing Penalty (veh)				0			

Intersection: 19: Pleasant Hill Road & School Dwy.

Movement	NB	NB	SB	SB
Directions Served	T	TR	T	T
Maximum Queue (ft)	267	288	353	375
Average Queue (ft)	67	70	228	344
95th Queue (ft)	335	348	424	362
Link Distance (ft)	654	654	266	266
Upstream Blk Time (%)	0	1	14	80
Queuing Penalty (veh)	1	4	242	1433
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 20: Pleasant Hill Road & School Dwy.

Movement	WB	NB	NB	SB	SB
Directions Served	R	T	TR	T	T
Maximum Queue (ft)	231	21	29	689	689
Average Queue (ft)	178	1	4	586	666
95th Queue (ft)	255	19	35	816	678
Link Distance (ft)	193	229	229	654	654
Upstream Blk Time (%)	33			9	33
Queuing Penalty (veh)	0			164	597
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 22061

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	0	26	0	0	2	43	2088	0	0	1202	19
Future Volume (veh/h)	31	0	26	0	0	2	43	2088	0	0	1202	19
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	0	1863	1900
Adj Flow Rate, veh/h	34	0	28	0	0	2	47	2270	0	0	1252	20
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	116	0	34	0	0	83	546	2930	0	0	1615	26
Arrive On Green	0.05	0.00	0.05	0.00	0.00	0.05	0.31	0.83	0.00	0.00	0.45	0.45
Sat Flow, veh/h	795	0	654	0	0	1583	1774	3632	0	0	3659	57
Grp Volume(v), veh/h	62	0	0	0	0	2	47	2270	0	0	621	651
Grp Sat Flow(s),veh/h/ln	1449	0	0	0	0	1583	1774	1770	0	0	1770	1853
Q Serve(g_s), s	3.1	0.0	0.0	0.0	0.0	0.1	1.4	23.1	0.0	0.0	22.2	22.2
Cycle Q Clear(g_c), s	3.2	0.0	0.0	0.0	0.0	0.1	1.4	23.1	0.0	0.0	22.2	22.2
Prop In Lane	0.55		0.45	0.00		1.00	1.00		0.00	0.00		0.03
Lane Grp Cap(c), veh/h	150	0	0	0	0	83	546	2930	0	0	802	839
V/C Ratio(X)	0.41	0.00	0.00	0.00	0.00	0.02	0.09	0.77	0.00	0.00	0.77	0.78
Avail Cap(c_a), veh/h	389	0	0	0	0	338	546	2930	0	0	944	988
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	35.2	0.0	0.0	0.0	0.0	33.7	18.4	3.1	0.0	0.0	17.3	17.3
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	7.2	6.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	0.0	0.0	0.0	0.7	11.6	0.0	0.0	12.3	12.8
LnGrp Delay(d),s/veh	36.6	0.0	0.0	0.0	0.0	33.8	18.5	5.2	0.0	0.0	24.5	24.2
LnGrp LOS	D					C	B	A			C	C
Approach Vol, veh/h		62			2			2317			1272	
Approach Delay, s/veh		36.6			33.8			5.4			24.4	
Approach LOS		D			C			A			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		67.1		7.9	28.1	39.0		7.9
Change Period (Y+Rc), s		5.0		4.0	5.0	* 5		4.0
Max Green Setting (Gmax), s		50.0		16.0	6.0	* 40		16.0
Max Q Clear Time (g_c+I1), s		25.1		2.1	3.4	24.2		5.2
Green Ext Time (p_c), s		22.4		0.0	0.0	9.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	12.6
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	6	64	0	27	16	2125	84	56	1177	0
Future Volume (veh/h)	3	0	6	64	0	27	16	2125	84	56	1177	0
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	3	0	7	70	0	0	17	2310	0	58	1226	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	14	72	148	0	97	26	2821	1262	59	2888	1292
Arrive On Green	0.06	0.00	0.06	0.06	0.00	0.00	0.01	0.80	0.00	0.03	0.82	0.00
Sat Flow, veh/h	275	231	1179	1437	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	10	0	0	70	0	0	17	2310	0	58	1226	0
Grp Sat Flow(s),veh/h/ln	1685	0	0	1437	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.0	5.0	0.0	0.0	1.1	45.7	0.0	3.9	11.7	0.0
Cycle Q Clear(g_c), s	0.7	0.0	0.0	5.7	0.0	0.0	1.1	45.7	0.0	3.9	11.7	0.0
Prop In Lane	0.30		0.70	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	142	0	0	148	0	97	26	2821	1262	59	2888	1292
V/C Ratio(X)	0.07	0.00	0.00	0.47	0.00	0.00	0.66	0.82	0.00	0.98	0.42	0.00
Avail Cap(c_a), veh/h	379	0	0	366	0	343	74	2821	1262	59	2888	1292
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.2	0.0	0.0	55.5	0.0	0.0	58.8	7.1	0.0	58.0	3.1	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.9	0.0	0.0	10.5	2.8	0.0	109.6	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	2.3	0.0	0.0	0.6	22.9	0.0	3.7	5.8	0.0
LnGrp Delay(d),s/veh	53.4	0.0	0.0	56.4	0.0	0.0	69.3	9.9	0.0	167.6	3.6	0.0
LnGrp LOS	D			E			E	A		F	A	
Approach Vol, veh/h		10			70			2327			1284	
Approach Delay, s/veh		53.4			56.4			10.3			11.0	
Approach LOS		D			E			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	100.7		11.3	5.7	102.9		11.3
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	4.0	77.0		26.0	5.0	76.0		26.0
Max Q Clear Time (g_c+I1), s	15.9	47.7		7.7	3.1	13.7		2.7
Green Ext Time (p_c), s	0.0	26.2		0.2	0.0	19.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.5
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	177	204	2177	1228	32
Future Volume (veh/h)	29	177	204	2177	1228	32
Number	3	18	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	32	0	217	2316	1293	34
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.94	0.94	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	43	39	251	3099	2440	1092
Arrive On Green	0.02	0.00	0.14	0.88	0.69	0.69
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	32	0	217	2316	1293	34
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	1.6	0.0	10.8	21.2	16.1	0.6
Cycle Q Clear(g_c), s	1.6	0.0	10.8	21.2	16.1	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	43	39	251	3099	2440	1092
V/C Ratio(X)	0.74	0.00	0.86	0.75	0.53	0.03
Avail Cap(c_a), veh/h	453	405	276	3099	2440	1092
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	0.0	37.8	2.0	6.8	4.4
Incr Delay (d2), s/veh	16.4	0.0	20.6	1.7	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	6.7	10.4	8.0	0.3
LnGrp Delay(d),s/veh	60.0	0.0	58.4	3.7	7.7	4.5
LnGrp LOS	E		E	A	A	A
Approach Vol, veh/h	32			2533	1327	
Approach Delay, s/veh	60.0			8.4	7.6	
Approach LOS	E			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		83.8			16.8	67.0		6.2
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0
Max Green Setting (Gmax), s		58.0			14.0	40.0		23.0
Max Q Clear Time (g_c+I1), s		23.2			12.8	18.1		3.6
Green Ext Time (p_c), s		30.7			0.0	13.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.5
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	11	164	45	10	11	183	2307	79	13	1375	47
Future Volume (veh/h)	74	11	164	45	10	11	183	2307	79	13	1375	47
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1863	1520	1520	1520
Adj Flow Rate, veh/h	80	12	0	49	11	12	191	2403	82	14	1432	49
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	15	119	128	28	21	217	2901	1298	18	2049	917
Arrive On Green	0.08	0.08	0.00	0.08	0.08	0.08	0.12	0.82	0.82	0.01	0.71	0.71
Sat Flow, veh/h	1346	202	1583	1032	365	280	1774	3539	1583	1447	2887	1292
Grp Volume(v), veh/h	92	0	0	72	0	0	191	2403	82	14	1432	49
Grp Sat Flow(s),veh/h/ln	1548	0	1583	1677	0	0	1774	1770	1583	1447	1444	1292
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	0.0	12.7	45.7	1.2	1.2	34.3	1.4
Cycle Q Clear(g_c), s	6.8	0.0	0.0	4.8	0.0	0.0	12.7	45.7	1.2	1.2	34.3	1.4
Prop In Lane	0.87		1.00	0.68		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	173	0	119	177	0	0	217	2901	1298	18	2049	917
V/C Ratio(X)	0.53	0.00	0.00	0.41	0.00	0.00	0.88	0.83	0.06	0.78	0.70	0.05
Avail Cap(c_a), veh/h	363	0	330	374	0	0	244	2901	1298	54	2049	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.4	0.0	0.0	53.5	0.0	0.0	51.8	6.1	2.1	59.1	10.0	5.3
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.6	0.0	0.0	24.8	2.9	0.1	22.9	2.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	0.0	2.3	0.0	0.0	7.7	22.9	0.5	0.6	14.1	0.5
LnGrp Delay(d),s/veh	55.3	0.0	0.0	54.1	0.0	0.0	76.6	9.0	2.1	81.9	12.0	5.4
LnGrp LOS	E			D			E	A	A	F	B	A
Approach Vol, veh/h		92			72			2676			1495	
Approach Delay, s/veh		55.3			54.1			13.6			12.5	
Approach LOS		E			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.0	102.5		12.5	18.2	89.3		12.5
Change Period (Y+Rc), s	3.5	4.1		3.5	3.5	4.1		3.5
Max Green Setting (Gmax), s	4.5	79.4		25.0	16.5	67.4		25.0
Max Q Clear Time (g_c+I1), s	3.2	47.7		6.8	14.7	36.3		8.8
Green Ext Time (p_c), s	0.0	29.0		0.2	0.0	18.4		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	578	125	72	354	137	111	181	1809	285	153	1231	359
Future Volume (veh/h)	578	125	72	354	137	111	181	1809	285	153	1231	359
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.92	1.00		0.91
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1471	1471	1471
Adj Flow Rate, veh/h	628	136	78	267	314	121	197	1966	310	163	1310	382
Adj No. of Lanes	2	1	0	1	1	1	1	2	1	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	593	191	110	306	321	272	219	1536	651	126	1663	472
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.12	0.45	0.45	0.09	0.41	0.41
Sat Flow, veh/h	3442	1111	637	1774	1863	1578	1774	3427	1453	1401	4015	1138
Grp Volume(v), veh/h	628	0	214	267	314	121	197	1966	310	163	1310	382
Grp Sat Flow(s),veh/h/ln	1721	0	1748	1774	1863	1578	1774	1714	1453	1401	1338	1138
Q Serve(g_s), s	25.0	0.0	16.7	21.3	24.3	10.0	15.9	65.0	21.7	13.0	41.1	42.9
Cycle Q Clear(g_c), s	25.0	0.0	16.7	21.3	24.3	10.0	15.9	65.0	21.7	13.0	41.1	42.9
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	593	0	301	306	321	272	219	1536	651	126	1663	472
V/C Ratio(X)	1.06	0.00	0.71	0.87	0.98	0.44	0.90	1.28	0.48	1.30	0.79	0.81
Avail Cap(c_a), veh/h	593	0	301	306	321	272	245	1536	651	126	1663	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	0.0	56.6	58.5	59.7	53.8	62.6	40.0	28.1	66.0	36.9	37.4
Incr Delay (d2), s/veh	53.3	0.0	6.5	22.3	43.9	0.4	28.6	131.0	2.5	180.5	3.9	14.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.3	0.0	8.6	12.4	16.5	4.4	9.5	58.7	9.1	11.3	15.8	15.3
LnGrp Delay(d),s/veh	113.3	0.0	63.1	80.7	103.6	54.2	91.2	171.0	30.5	246.5	40.8	51.4
LnGrp LOS	F		E	F	F	D	F	F	C	F	D	D
Approach Vol, veh/h		842			702			2473			1855	
Approach Delay, s/veh		100.6			86.4			147.0			61.0	
Approach LOS		F			F			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	70.0		29.0	21.9	65.1		29.0
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	13.0	65.0		25.0	20.0	58.0		25.0
Max Q Clear Time (g_c+I1), s	15.0	67.0		26.3	17.9	44.9		27.0
Green Ext Time (p_c), s	0.0	0.0		0.0	0.1	10.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	105.9
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	639	389	0	0	0	346	812	594	0	810	798
Future Volume (veh/h)	320	639	389	0	0	0	346	812	594	0	810	798
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				1863	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	348	695	423				376	883	646	0	871	0
Adj No. of Lanes	1	2	0				1	2	1	0	2	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				2	2	2	0	2	2
Cap, veh/h	603	720	437				378	1888	844	0	944	422
Arrive On Green	0.34	0.34	0.34				0.21	0.53	0.53	0.00	0.27	0.00
Sat Flow, veh/h	1774	2119	1287				1774	3539	1583	0	3632	1583
Grp Volume(v), veh/h	348	580	538				376	883	646	0	871	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1636				1774	1770	1583	0	1770	1583
Q Serve(g_s), s	12.1	24.1	24.2				15.9	11.6	24.1	0.0	18.0	0.0
Cycle Q Clear(g_c), s	12.1	24.1	24.2				15.9	11.6	24.1	0.0	18.0	0.0
Prop In Lane	1.00		0.79				1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	603	602	556				378	1888	844	0	944	422
V/C Ratio(X)	0.58	0.96	0.97				0.99	0.47	0.76	0.00	0.92	0.00
Avail Cap(c_a), veh/h	603	602	556				378	1888	844	0	944	422
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.38	0.38	0.38	0.00	1.00	0.00
Uniform Delay (d), s/veh	20.3	24.3	24.3				29.4	10.9	13.8	0.0	26.7	0.0
Incr Delay (d2), s/veh	0.9	27.7	29.7				26.9	0.3	2.6	0.0	15.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	16.4	15.5				10.6	5.7	11.0	0.0	10.8	0.0
LnGrp Delay(d),s/veh	21.2	52.0	54.0				56.4	11.2	16.4	0.0	42.5	0.0
LnGrp LOS	C	D	D				E	B	B		D	
Approach Vol, veh/h		1466						1905			871	
Approach Delay, s/veh		45.4						21.9			42.5	
Approach LOS		D						C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		45.0		30.0	20.0	25.0		
Change Period (Y+Rc), s		5.0		4.5	4.0	5.0		
Max Green Setting (Gmax), s		40.0		25.5	16.0	20.0		
Max Q Clear Time (g_c+I1), s		26.1		26.2	17.9	20.0		
Green Ext Time (p_c), s		9.3		0.0	0.0	0.0		

Intersection Summary		
HCM 2010 Ctrl Delay		34.3
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	58	294	23	0	207	0	1462	28	172	1024	0
Future Volume (veh/h)	74	58	294	23	0	207	0	1462	28	172	1024	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	0	1863	0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	78	61	309	25	0	225	0	1589	30	187	1113	0
Adj No. of Lanes	0	1	1	1	0	1	0	3	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	244	191	380	0	0	0	0	2062	39	234	2155	0
Arrive On Green	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.40	0.40	0.13	0.61	0.00
Sat Flow, veh/h	1017	795	1583		0		0	5306	97	1774	3632	0
Grp Volume(v), veh/h	139	0	309		0.0		0	1048	571	187	1113	0
Grp Sat Flow(s),veh/h/ln	1812	0	1583				0	1695	1846	1774	1770	0
Q Serve(g_s), s	3.3	0.0	9.7				0.0	14.2	14.2	5.4	9.5	0.0
Cycle Q Clear(g_c), s	3.3	0.0	9.7				0.0	14.2	14.2	5.4	9.5	0.0
Prop In Lane	0.56		1.00				0.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	434	0	380				0	1361	741	234	2155	0
V/C Ratio(X)	0.32	0.00	0.81				0.00	0.77	0.77	0.80	0.52	0.00
Avail Cap(c_a), veh/h	583	0	510				0	1477	804	269	2346	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.5	0.0	19.0				0.0	13.7	13.7	22.3	5.9	0.0
Incr Delay (d2), s/veh	0.4	0.0	7.3				0.0	2.4	4.3	14.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	5.0				0.0	7.0	8.0	3.6	4.5	0.0
LnGrp Delay(d),s/veh	17.0	0.0	26.3				0.0	16.1	18.0	36.2	6.1	0.0
LnGrp LOS	B		C					B	B	D	A	
Approach Vol, veh/h		448						1619			1300	
Approach Delay, s/veh		23.4						16.7			10.4	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		16.7		36.1			11.0	25.2
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0
Max Green Setting (Gmax), s		17.0		35.0			8.0	23.0
Max Q Clear Time (g_c+I1), s		11.7		11.5			7.4	16.2
Green Ext Time (p_c), s		0.9		8.6			0.0	5.0

Intersection Summary	
HCM 2010 Ctrl Delay	15.2
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	13	0	0	14	0	0	0	0	0	0	0
Future Vol, veh/h	0	13	0	0	14	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	94	94	94	98	98	98	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	14	0	0	15	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	15	0	0	14	0	0	29	29	14	29	29	15
Stage 1	-	-	-	-	-	-	14	14	-	15	15	-
Stage 2	-	-	-	-	-	-	15	15	-	14	14	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1603	-	-	1604	-	-	980	864	1066	980	864	1065
Stage 1	-	-	-	-	-	-	1006	884	-	1005	883	-
Stage 2	-	-	-	-	-	-	1005	883	-	1006	884	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1603	-	-	1604	-	-	980	864	1066	980	864	1065
Mov Cap-2 Maneuver	-	-	-	-	-	-	980	864	-	980	864	-
Stage 1	-	-	-	-	-	-	1006	884	-	1005	883	-
Stage 2	-	-	-	-	-	-	1005	883	-	1006	884	-

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

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	1603	-	-	1604	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	-	0	-	-	0	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	475	1739	193	382	12	308	22	144	5	44	32
Future Volume (veh/h)	44	475	1739	193	382	12	308	22	144	5	44	32
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	48	516	0	210	415	13	352	0	0	5	48	35
Adj No. of Lanes	1	1	1	1	1	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	606	515	260	780	24	518	0	231	9	85	62
Arrive On Green	0.04	0.33	0.00	0.15	0.43	0.43	0.15	0.00	0.00	0.09	0.09	0.09
Sat Flow, veh/h	1774	1863	1583	1774	1797	56	3548	0	1583	99	947	690
Grp Volume(v), veh/h	48	516	0	210	0	428	352	0	0	88	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1853	1774	0	1583	1736	0	0
Q Serve(g_s), s	1.5	14.2	0.0	6.3	0.0	9.3	5.1	0.0	0.0	2.7	0.0	0.0
Cycle Q Clear(g_c), s	1.5	14.2	0.0	6.3	0.0	9.3	5.1	0.0	0.0	2.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.06		0.40
Lane Grp Cap(c), veh/h	67	606	515	260	0	804	518	0	231	156	0	0
V/C Ratio(X)	0.71	0.85	0.00	0.81	0.00	0.53	0.68	0.00	0.00	0.56	0.00	0.00
Avail Cap(c_a), veh/h	162	748	636	324	0	914	1037	0	463	507	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	26.0	17.2	0.0	22.6	0.0	11.4	22.2	0.0	0.0	23.9	0.0	0.0
Incr Delay (d2), s/veh	13.2	7.9	0.0	11.5	0.0	0.5	1.6	0.0	0.0	3.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	8.5	0.0	3.9	0.0	4.9	2.6	0.0	0.0	1.4	0.0	0.0
LnGrp Delay(d),s/veh	39.2	25.1	0.0	34.1	0.0	12.0	23.7	0.0	0.0	27.1	0.0	0.0
LnGrp LOS	D	C		C		B	C			C		
Approach Vol, veh/h		564			638			352			88	
Approach Delay, s/veh		26.3			19.2			23.7			27.1	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		12.0	12.0	21.8		8.9	6.1	27.8
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		16.0	10.0	22.0		16.0	5.0	27.0
Max Q Clear Time (g_c+I1), s		7.1	8.3	16.2		4.7	3.5	11.3
Green Ext Time (p_c), s		0.8	0.1	1.6		0.3	0.0	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	23.0
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

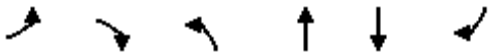
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1054	398	295	394	15	775	13	1213	32	13	10
Future Volume (veh/h)	13	1054	398	295	394	15	775	13	1213	32	13	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	14	1146	0	314	419	16	852	0	1318	35	14	11
Adj No. of Lanes	1	2	1	1	2	0	2	0	2	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	1091	488	310	1637	62	887	0	1346	136	55	43
Arrive On Green	0.01	0.31	0.00	0.17	0.47	0.47	0.25	0.00	0.25	0.13	0.13	0.13
Sat Flow, veh/h	1774	3539	1583	1774	3476	132	3548	0	3167	1024	409	322
Grp Volume(v), veh/h	14	1146	0	314	213	222	852	0	1318	60	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1839	1774	0	1583	1755	0	0
Q Serve(g_s), s	0.9	37.0	0.0	21.0	8.7	8.7	28.4	0.0	30.0	3.7	0.0	0.0
Cycle Q Clear(g_c), s	0.9	37.0	0.0	21.0	8.7	8.7	28.4	0.0	30.0	3.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	0.58		0.18
Lane Grp Cap(c), veh/h	22	1091	488	310	833	866	887	0	1346	234	0	0
V/C Ratio(X)	0.63	1.05	0.00	1.01	0.26	0.26	0.96	0.00	0.98	0.26	0.00	0.00
Avail Cap(c_a), veh/h	59	1091	488	310	833	866	887	0	1346	234	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	59.0	41.5	0.0	49.5	19.1	19.1	44.4	0.0	34.0	46.7	0.0	0.0
Incr Delay (d2), s/veh	26.4	41.4	0.0	54.0	0.2	0.2	22.0	0.0	20.1	2.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	24.3	0.0	14.9	4.3	4.5	16.7	0.0	25.2	2.0	0.0	0.0
LnGrp Delay(d),s/veh	85.4	82.9	0.0	103.6	19.3	19.3	66.5	0.0	54.0	49.3	0.0	0.0
LnGrp LOS	F	F		F	B	B	E		D	D		
Approach Vol, veh/h		1160			749			2170			60	
Approach Delay, s/veh		82.9			54.6			58.9			49.3	
Approach LOS		F			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		34.0	25.0	41.0		20.0	5.5	60.5
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		30.0	21.0	37.0		16.0	4.0	54.0
Max Q Clear Time (g_c+I1), s		32.0	23.0	39.0		5.7	2.9	10.7
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	64.7
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	47	0	2233	1667	7
Future Volume (Veh/h)	0	47	0	2233	1667	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	51	0	2427	1812	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					352	
pX, platoon unblocked	0.73	0.73	0.73			
vC, conflicting volume	2419	604	1820			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1644	0	823			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	94	100			
cM capacity (veh/h)	66	790	585			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	51	607	607	607	607	604	604	604	8
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	51	0	0	0	0	0	0	0	8
cSH	790	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.06	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.00
Queue Length 95th (ft)	5	0	0	0	0	0	0	0	0
Control Delay (s)	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A								
Approach Delay (s)	9.9	0.0				0.0			
Approach LOS	A								

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	759	0	51	626	0	16
Future Vol, veh/h	759	0	51	626	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	825	0	55	680	0	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	825	0	1615	825
Stage 1	-	-	-	-	825	-
Stage 2	-	-	-	-	790	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	805	-	114	372
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	447	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	805	-	106	372
Mov Cap-2 Maneuver	-	-	-	-	106	-
Stage 1	-	-	-	-	401	-
Stage 2	-	-	-	-	447	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	15.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	372	-	-	805	-
HCM Lane V/C Ratio	0.047	-	-	0.069	-
HCM Control Delay (s)	15.2	-	-	9.8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	759	13	0	626	14	0
Future Vol, veh/h	759	13	0	626	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	825	14	0	680	15	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	839	0	1512	832
Stage 1	-	-	-	-	832	-
Stage 2	-	-	-	-	680	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	796	-	132	369
Stage 1	-	-	-	-	427	-
Stage 2	-	-	-	-	503	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	796	-	132	369
Mov Cap-2 Maneuver	-	-	-	-	271	-
Stage 1	-	-	-	-	427	-
Stage 2	-	-	-	-	503	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	19.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	271	-	-	796	-
HCM Lane V/C Ratio	0.056	-	-	-	-
HCM Control Delay (s)	19.1	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	11131	11242	11087	10922	11494	11174
Vehs Exited	10855	11065	10879	10821	11232	10969
Starting Vehs	614	607	636	629	608	609
Ending Vehs	890	784	844	730	870	823
Travel Distance (mi)	7437	7719	7591	7604	7625	7595
Travel Time (hr)	4540.2	4360.9	4508.1	4718.3	4704.2	4566.3
Total Delay (hr)	4299.4	4111.9	4263.4	4473.5	4457.5	4321.1
Total Stops	19237	18437	17463	17291	19242	18333
Fuel Used (gal)	1242.1	1211.2	1240.5	1287.8	1286.8	1253.7

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	11131	11242	11087	10922	11494	11174
Vehs Exited	10855	11065	10879	10821	11232	10969
Starting Vehs	614	607	636	629	608	609
Ending Vehs	890	784	844	730	870	823
Travel Distance (mi)	7437	7719	7591	7604	7625	7595
Travel Time (hr)	4540.2	4360.9	4508.1	4718.3	4704.2	4566.3
Total Delay (hr)	4299.4	4111.9	4263.4	4473.5	4457.5	4321.1
Total Stops	19237	18437	17463	17291	19242	18333
Fuel Used (gal)	1242.1	1211.2	1240.5	1287.8	1286.8	1253.7

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Old Tunnel Road	7	225.7	5323.7	0.1	2
SR 24 WB On Ramp	6	68.3	76.5	0.1	3
	17	51.2	56.4	0.1	4
	16	1.6	9.5	0.1	26
	15	1.1	9.5	0.1	39
Acalanes Avenue	14	1.5	10.0	0.1	22
Proj. Driveway	11	1.2	6.7	0.1	29
Stanley Boulevard	5	30.9	37.9	0.1	6
School Dwy.	20	3.7	9.9	0.1	22
School Dwy.	19	2.6	15.6	0.1	31
	18	0.7	6.6	0.1	33
	39	0.5	10.1	0.1	33
Quandt Road	4	3.9	14.7	0.1	29
	37	1.3	7.9	0.1	33
Reliez Valle Road	3	1.4	7.8	0.1	33
	58	0.8	8.8	0.1	37
Greenvalley Drive	2	5.9	26.7	0.2	32
	22	2.1	17.8	0.2	35
Rancho View Drive	1	3.2	22.7	0.2	35
Total		407.6	5678.8	1.9	12

Arterial Level of Service: SB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Rancho View Drive	1	3.2	19.8	0.2	30
	22	2.1	24.8	0.2	32
Greenvalley Drive	2	3.7	21.6	0.2	29
	58	2.8	26.9	0.2	31
Reliez Valle Road	3	8.4	17.7	0.1	18
	37	6.2	13.4	0.1	19
Springhill Road	4	16.5	24.1	0.1	11
	39	24.1	36.4	0.1	12
	18	35.5	58.0	0.1	7
School Dwy.	19	28.1	119.8	0.1	6
School Dwy.	20	60.9	74.6	0.1	7
Deer Hill Road	5	35.5	41.2	0.1	5
Proj. Driveway	11	2.3	9.4	0.1	26
Acalanes Avenue	14	1.4	6.5	0.1	30
	15	0.7	7.3	0.1	30
	16	2.3	10.5	0.1	35
	17	4.6	13.2	0.1	19
Mt. Diablo Boulevard	6	16.9	23.3	0.1	10
SR 24 EB Off Ramp	7	18.6	24.7	0.1	8
Total		273.7	573.0	2.0	15

Intersection: 1: Pleasant Hill Road & Rancho View Drive

Movement	EB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	T	TR	T	TR
Maximum Queue (ft)	86	15	91	132	157	174	170
Average Queue (ft)	37	1	22	22	34	65	43
95th Queue (ft)	70	8	63	78	103	144	117
Link Distance (ft)	187	111		1095	1095	829	829
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			148				
Storage Blk Time (%)				0			
Queuing Penalty (veh)				0			

Intersection: 2: Pleasant Hill Road & Greenvalley Drive

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T
Maximum Queue (ft)	30	163	96	50	207	207	73	109	145	161
Average Queue (ft)	8	60	11	9	75	90	2	46	41	59
95th Queue (ft)	28	118	59	34	173	181	37	94	112	139
Link Distance (ft)	275	522			1184	1184			848	848
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			75	76			168	95		
Storage Blk Time (%)		12	0	0	5	1	0	3	1	5
Queuing Penalty (veh)		3	0	1	1	1	0	18	0	0

Intersection: 3: Pleasant Hill Road & Reliez Valle Road

Movement	EB	EB	NB	NB	NB	SB	SB	SB	B58	B58
Directions Served	L	R	L	T	T	T	T	R	T	T
Maximum Queue (ft)	90	101	156	98	113	339	352	105	46	50
Average Queue (ft)	31	9	77	17	33	96	114	12	2	2
95th Queue (ft)	72	61	133	60	94	250	277	67	23	29
Link Distance (ft)	396	396		322	322	430	430		1184	1184
Upstream Blk Time (%)						1	2			
Queuing Penalty (veh)						5	12			
Storage Bay Dist (ft)			230					130		
Storage Blk Time (%)							7	0		
Queuing Penalty (veh)							2	0		

Intersection: 4: Pleasant Hill Road & Springhill Road/Quandt Road

Movement	EB	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB	B37
Directions Served	LT	R	LTR	L	T	T	R	L	T	T	R	T
Maximum Queue (ft)	326	124	133	178	162	207	87	82	383	405	94	139
Average Queue (ft)	92	24	55	81	58	79	9	12	181	206	21	29
95th Queue (ft)	242	103	109	154	131	161	44	46	378	410	82	172
Link Distance (ft)	410		125		568	568			318	318		322
Upstream Blk Time (%)	1		2						7	10		1
Queuing Penalty (veh)	0		0						50	73		7
Storage Bay Dist (ft)		100		200			100	105			71	
Storage Blk Time (%)	6	0		0	0	3	0		16	23	0	
Queuing Penalty (veh)	12	0		4	0	2	0		2	11	0	

Intersection: 4: Pleasant Hill Road & Springhill Road/Quandt Road

Movement	B37	B37
Directions Served	T	
Maximum Queue (ft)	173	146
Average Queue (ft)	33	18
95th Queue (ft)	185	146
Link Distance (ft)	322	322
Upstream Blk Time (%)	2	1
Queuing Penalty (veh)	12	6
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Pleasant Hill Road & Deer Hill Road/Stanley Boulevard

Movement	EB	EB	EB	B27	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	L	TR	T	L	LT	R	L	T	T	R	L
Maximum Queue (ft)	98	100	193	471	210	554	536	188	361	358	105	201
Average Queue (ft)	72	94	174	404	163	522	436	95	271	285	44	190
95th Queue (ft)	119	110	183	453	270	545	722	167	356	365	84	232
Link Distance (ft)			100	383		504	504	280	280	280	280	
Upstream Blk Time (%)	2	17	73	65		87	34		6	9		
Queuing Penalty (veh)	0	0	617	544		0	0		39	54		
Storage Bay Dist (ft)	101	101			185							176
Storage Blk Time (%)	2	17	73		0	79						65
Queuing Penalty (veh)	3	37	460		0	152						283

Intersection: 5: Pleasant Hill Road & Deer Hill Road/Stanley Boulevard

Movement	SB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (ft)	319	309	310	76
Average Queue (ft)	288	252	284	64
95th Queue (ft)	355	307	334	100
Link Distance (ft)	229	229	229	
Upstream Blk Time (%)	55	13	30	
Queuing Penalty (veh)	341	84	185	
Storage Bay Dist (ft)				50
Storage Blk Time (%)	12		43	8
Queuing Penalty (veh)	19		166	37

Intersection: 6: Pleasant Hill Road & Mt. Diablo Boulevard/SR 24 WB On Ramp

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	T	T	R
Maximum Queue (ft)	307	363	371	240	252	270	75	183	182	158
Average Queue (ft)	287	332	272	82	121	237	53	107	102	50
95th Queue (ft)	358	376	477	189	259	284	108	171	166	137
Link Distance (ft)		325	325	234	234	234		150	150	150
Upstream Blk Time (%)	1	60	28	0	4	52		2	1	0
Queuing Penalty (veh)	0	0	0	2	25	330		12	8	2
Storage Bay Dist (ft)	282						50			
Storage Blk Time (%)	58	3				70	7			
Queuing Penalty (veh)	201	10				452	32			

Intersection: 7: Pleasant Hill Road & SR 24 EB Off Ramp/Old Tunnel Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	R	T	T	TR	L	T	T
Maximum Queue (ft)	135	141	75	193	602	618	650	125	252	251
Average Queue (ft)	107	79	13	155	157	375	613	89	138	140
95th Queue (ft)	158	162	50	184	510	774	635	146	248	246
Link Distance (ft)	114	114	145	145	596	596	596		234	234
Upstream Blk Time (%)	43	14		88	4	11	99		1	1
Queuing Penalty (veh)	0	0		0	0	0	0		7	7
Storage Bay Dist (ft)								100		
Storage Blk Time (%)								12	14	
Queuing Penalty (veh)								66	26	

Intersection: 8: Brown Avenue & Deer Hill Road

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 9: First Street/Sierra Vista Way & Deer Hill Road

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	R	L	TR	L	LT	R	LTR
Maximum Queue (ft)	74	341	240	174	352	270	219	85	106
Average Queue (ft)	16	194	200	121	178	152	80	8	47
95th Queue (ft)	52	372	294	193	348	269	206	64	90
Link Distance (ft)		305			656	285	285		107
Upstream Blk Time (%)		2				1	0		1
Queuing Penalty (veh)		45				0	0		0
Storage Bay Dist (ft)	71		215	150				120	
Storage Blk Time (%)	0	12	12	5	15		2	0	
Queuing Penalty (veh)	0	231	68	21	31		3	0	

Intersection: 10: SR 24 WB Ramps/Laurel Drive & Deer Hill Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	TR	L	LT	R	R	LTR
Maximum Queue (ft)	119	298	291	165	200	320	312	302	306	326	322	133
Average Queue (ft)	14	270	268	37	183	207	119	206	234	302	300	50
95th Queue (ft)	68	283	280	148	236	407	298	292	357	317	312	103
Link Distance (ft)		253	253			305	305	282	282	282	282	294
Upstream Blk Time (%)		86	77			12	0	2	9	97	84	
Queuing Penalty (veh)		0	0			48	1	0	0	0	0	
Storage Bay Dist (ft)	95			140	175							
Storage Blk Time (%)		88	16	0	39							
Queuing Penalty (veh)		12	70	1	82							

Intersection: 11: Pleasant Hill Road & Proj. Driveway

Movement	EB	NB	NB	SB
Directions Served	R	T	T	T
Maximum Queue (ft)	58	67	85	8
Average Queue (ft)	24	4	8	0
95th Queue (ft)	48	28	41	6
Link Distance (ft)	163	226	226	280
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				0
Queuing Penalty (veh)				0

Intersection: 12: Proj. Driveway & Deer Hill Road

Movement	EB	B38	WB	NB
Directions Served	TR	T	L	LR
Maximum Queue (ft)	1175	635	64	156
Average Queue (ft)	1130	586	16	113
95th Queue (ft)	1237	815	50	184
Link Distance (ft)	1062	620		145
Upstream Blk Time (%)	90	42		45
Queuing Penalty (veh)	745	347		0
Storage Bay Dist (ft)			100	
Storage Blk Time (%)			0	
Queuing Penalty (veh)			1	

Intersection: 13: Proj. Driveway & Deer Hill Road

Movement	EB	NB
Directions Served	TR	LR
Maximum Queue (ft)	526	34
Average Queue (ft)	434	13
95th Queue (ft)	687	37
Link Distance (ft)	938	211
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Pleasant Hill Road & Acalanes Avenue

Movement	WB	NB	SB	SB	SB
Directions Served	R	TR	T	T	T
Maximum Queue (ft)	86	14	65	65	5
Average Queue (ft)	32	0	2	3	0
95th Queue (ft)	61	10	33	39	4
Link Distance (ft)	167	282	226	226	226
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 15: Pleasant Hill Road

Movement	WB	NB	NB
Directions Served	R	T	T
Maximum Queue (ft)	625	15	57
Average Queue (ft)	592	1	12
95th Queue (ft)	610	6	44
Link Distance (ft)	574	244	244
Upstream Blk Time (%)	100		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Pleasant Hill Road

Movement	EB	NB	NB	NB	SB
Directions Served	R	T	T	R	T
Maximum Queue (ft)	553	53	58	39	158
Average Queue (ft)	524	2	2	2	33
95th Queue (ft)	538	37	41	17	101
Link Distance (ft)	505	288	288	288	244
Upstream Blk Time (%)	100		0		
Queuing Penalty (veh)	0		0		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 17: Pleasant Hill Road

Movement	WB	NB	NB	SB	SB	SB
Directions Served	R	T	T	T	T	TR
Maximum Queue (ft)	507	184	198	33	48	163
Average Queue (ft)	409	78	147	2	3	39
95th Queue (ft)	648	194	213	19	25	114
Link Distance (ft)	458	150	150	288	288	288
Upstream Blk Time (%)	42	14	59			
Queuing Penalty (veh)	0	83	365			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 18: Pleasant Hill Road

Movement	WB	SB	SB	B39	B39
Directions Served	R	T	T	T	T
Maximum Queue (ft)	117	525	537	521	595
Average Queue (ft)	83	319	352	184	219
95th Queue (ft)	116	668	699	581	667
Link Distance (ft)	82	432	432	568	568
Upstream Blk Time (%)	22	14	45	3	17
Queuing Penalty (veh)	0	113	375	27	138
Storage Bay Dist (ft)					
Storage Blk Time (%)		7			
Queuing Penalty (veh)		0			

Intersection: 19: Pleasant Hill Road & School Dwy.

Movement	NB	SB	SB
Directions Served	TR	T	T
Maximum Queue (ft)	11	368	379
Average Queue (ft)	0	254	294
95th Queue (ft)	8	453	481
Link Distance (ft)	654	266	266
Upstream Blk Time (%)		15	66
Queuing Penalty (veh)		126	566
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 20: Pleasant Hill Road & School Dwy.

Movement	WB	NB	SB	SB
Directions Served	R	T	T	T
Maximum Queue (ft)	246	11	693	683
Average Queue (ft)	213	0	577	620
95th Queue (ft)	229	8	865	848
Link Distance (ft)	193	229	654	654
Upstream Blk Time (%)	100		7	20
Queuing Penalty (veh)	0		64	193
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 8182

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	31	0	0	0	29	3059	0	0	1182	27
Future Volume (veh/h)	10	0	31	0	0	0	29	3059	0	0	1182	27
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	0	1863	1900
Adj Flow Rate, veh/h	11	0	34	0	0	0	30	3121	0	0	1244	28
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	40	3	42	0	67	0	758	3200	0	0	1570	35
Arrive On Green	0.04	0.00	0.04	0.00	0.00	0.00	0.43	0.90	0.00	0.00	0.44	0.44
Sat Flow, veh/h	293	88	1178	0	1863	0	1774	3632	0	0	3632	80
Grp Volume(v), veh/h	45	0	0	0	0	0	30	3121	0	0	622	650
Grp Sat Flow(s),veh/h/ln	1559	0	0	0	1863	0	1774	1770	0	0	1770	1849
Q Serve(g_s), s	3.1	0.0	0.0	0.0	0.0	0.0	1.5	107.3	0.0	0.0	45.2	45.3
Cycle Q Clear(g_c), s	4.3	0.0	0.0	0.0	0.0	0.0	1.5	107.3	0.0	0.0	45.2	45.3
Prop In Lane	0.24		0.76	0.00		0.00	1.00		0.00	0.00		0.04
Lane Grp Cap(c), veh/h	86	0	0	0	67	0	758	3200	0	0	785	820
V/C Ratio(X)	0.52	0.00	0.00	0.00	0.00	0.00	0.04	0.98	0.00	0.00	0.79	0.79
Avail Cap(c_a), veh/h	195	0	0	0	199	0	758	3200	0	0	1357	1417
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	71.8	0.0	0.0	0.0	0.0	0.0	25.0	5.8	0.0	0.0	35.8	35.8
Incr Delay (d2), s/veh	3.6	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	0.0	8.1	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	0.0	0.0	0.0	0.7	54.4	0.0	0.0	23.9	24.9
LnGrp Delay(d),s/veh	75.4	0.0	0.0	0.0	0.0	0.0	25.0	16.9	0.0	0.0	43.9	43.6
LnGrp LOS	E						C	B			D	D
Approach Vol, veh/h		45			0			3151			1272	
Approach Delay, s/veh		75.4			0.0			17.0			43.7	
Approach LOS		E						B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		140.6		9.4	69.1	71.5		9.4
Change Period (Y+Rc), s		5.0		4.0	5.0	* 5		4.0
Max Green Setting (Gmax), s		125.0		16.0	6.0	* 1.2E2		16.0
Max Q Clear Time (g_c+I1), s		109.3		0.0	3.5	47.3		6.3
Green Ext Time (p_c), s		15.6		0.0	0.0	19.3		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	25.2
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	5	19	0	26	5	2988	34	18	1153	6
Future Volume (veh/h)	11	0	5	19	0	26	5	2988	34	18	1153	6
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	12	0	5	21	0	0	5	3049	0	19	1189	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	0	10	81	0	34	9	3106	1389	26	3140	1405
Arrive On Green	0.02	0.00	0.02	0.02	0.00	0.00	0.01	0.88	0.00	0.01	0.89	0.00
Sat Flow, veh/h	1168	0	487	1568	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	17	0	0	21	0	0	5	3049	0	19	1189	0
Grp Sat Flow(s),veh/h/ln	1655	0	0	1568	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	0.0	0.4	114.2	0.0	1.6	8.6	0.0
Cycle Q Clear(g_c), s	1.4	0.0	0.0	1.9	0.0	0.0	0.4	114.2	0.0	1.6	8.6	0.0
Prop In Lane	0.71		0.29	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	76	0	0	81	0	34	9	3106	1389	26	3140	1405
V/C Ratio(X)	0.22	0.00	0.00	0.26	0.00	0.00	0.56	0.98	0.00	0.73	0.38	0.00
Avail Cap(c_a), veh/h	297	0	0	295	0	274	47	3106	1389	47	3140	1405
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	72.5	0.0	0.0	72.7	0.0	0.0	74.5	8.1	0.0	73.6	1.4	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.6	0.0	0.0	19.0	12.4	0.0	13.8	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.9	0.0	0.0	0.3	58.7	0.0	0.9	4.3	0.0
LnGrp Delay(d),s/veh	73.6	0.0	0.0	73.3	0.0	0.0	93.5	20.5	0.0	87.4	1.8	0.0
LnGrp LOS	E			E			F	C		F	A	
Approach Vol, veh/h		17			21			3054			1208	
Approach Delay, s/veh		73.6			73.3			20.6			3.1	
Approach LOS		E			E			C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	136.6		7.2	4.8	138.1		7.2
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	4.6	107.0		26.0	4.0	107.0		26.0
Max Q Clear Time (g_c+I1), s	3.6	116.2		3.9	2.4	10.6		3.4
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	19.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.2
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	166	293	3004	1172	42
Future Volume (veh/h)	32	166	293	3004	1172	42
Number	3	18	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	35	0	308	3162	1274	46
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	45	40	331	3237	2482	1111
Arrive On Green	0.03	0.00	0.19	0.91	0.70	0.70
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	35	0	308	3162	1274	46
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	2.9	0.0	25.6	107.5	25.2	1.3
Cycle Q Clear(g_c), s	2.9	0.0	25.6	107.5	25.2	1.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	45	40	331	3237	2482	1111
V/C Ratio(X)	0.78	0.00	0.93	0.98	0.51	0.04
Avail Cap(c_a), veh/h	272	243	449	3237	2482	1111
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	72.7	0.0	60.1	5.1	10.4	6.9
Incr Delay (d2), s/veh	18.6	0.0	2.6	1.8	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	12.8	50.0	12.5	0.6
LnGrp Delay(d),s/veh	91.3	0.0	62.6	6.9	11.2	7.0
LnGrp LOS	F		E	A	B	A
Approach Vol, veh/h	35			3470	1320	
Approach Delay, s/veh	91.3			11.9	11.1	
Approach LOS	F			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		142.2			32.0	110.2		7.8
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0
Max Green Setting (Gmax), s		118.0			38.0	76.0		23.0
Max Q Clear Time (g_c+I1), s		109.5			27.6	27.2		4.9
Green Ext Time (p_c), s		8.5			0.3	19.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	12.2
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	3	140	35	0	10	198	3250	53	23	1378	39
Future Volume (veh/h)	31	3	140	35	0	10	198	3250	53	23	1378	39
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1863	1520	1520	1520
Adj Flow Rate, veh/h	34	3	0	38	0	11	206	3385	55	24	1466	41
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	6	65	95	0	15	227	3064	1371	27	2185	977
Arrive On Green	0.04	0.04	0.00	0.04	0.00	0.04	0.13	0.87	0.87	0.01	0.51	0.51
Sat Flow, veh/h	1515	134	1583	1255	0	363	1774	3539	1583	1447	2887	1292
Grp Volume(v), veh/h	37	0	0	49	0	0	206	3385	55	24	1466	41
Grp Sat Flow(s),veh/h/ln	1649	0	1583	1619	0	0	1774	1770	1583	1447	1444	1292
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	0.0	17.2	129.9	0.7	2.5	56.9	2.4
Cycle Q Clear(g_c), s	3.1	0.0	0.0	4.3	0.0	0.0	17.2	129.9	0.7	2.5	56.9	2.4
Prop In Lane	0.92		1.00	0.78		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	0	65	110	0	0	227	3064	1371	27	2185	977
V/C Ratio(X)	0.32	0.00	0.00	0.45	0.00	0.00	0.91	1.10	0.04	0.88	0.67	0.04
Avail Cap(c_a), veh/h	293	0	264	290	0	0	254	3064	1371	43	2185	977
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.80	0.80	0.80
Uniform Delay (d), s/veh	70.4	0.0	0.0	70.9	0.0	0.0	64.5	10.1	1.4	73.9	23.0	9.6
Incr Delay (d2), s/veh	0.6	0.0	0.0	1.1	0.0	0.0	29.5	52.7	0.1	39.1	1.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	2.0	0.0	0.0	10.3	83.7	0.3	1.3	23.2	0.9
LnGrp Delay(d),s/veh	71.0	0.0	0.0	71.9	0.0	0.0	94.0	62.8	1.5	113.0	24.4	9.7
LnGrp LOS	E			E			F	F	A	F	C	A
Approach Vol, veh/h		37			49			3646			1531	
Approach Delay, s/veh		71.0			71.9			63.6			25.4	
Approach LOS		E			E			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.3	134.0		9.7	22.7	117.6		9.7
Change Period (Y+Rc), s	3.5	4.1		3.5	3.5	4.1		3.5
Max Green Setting (Gmax), s	4.5	109.4		25.0	21.5	92.4		25.0
Max Q Clear Time (g_c+I1), s	4.5	131.9		6.3	19.2	58.9		5.1
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	19.7		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	52.6
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1045	149	82	299	115	241	140	2265	294	170	1037	300
Future Volume (veh/h)	1045	149	82	299	115	241	140	2265	294	170	1037	300
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.91	1.00		0.90
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1471	1471	1471
Adj Flow Rate, veh/h	1100	157	86	225	265	262	144	2335	303	185	1127	326
Adj No. of Lanes	2	1	0	1	1	1	1	2	1	1	3	1
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.97	0.97	0.97	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	807	265	145	306	321	272	166	1371	575	106	1534	431
Arrive On Green	0.23	0.23	0.23	0.17	0.17	0.17	0.09	0.40	0.40	0.08	0.38	0.38
Sat Flow, veh/h	3442	1132	620	1774	1863	1578	1774	3427	1437	1401	4015	1129
Grp Volume(v), veh/h	1100	0	243	225	265	262	144	2335	303	185	1127	326
Grp Sat Flow(s),veh/h/ln	1721	0	1751	1774	1863	1578	1774	1714	1437	1401	1338	1129
Q Serve(g_s), s	34.0	0.0	17.9	17.4	19.9	23.9	11.6	58.0	23.2	11.0	35.0	36.4
Cycle Q Clear(g_c), s	34.0	0.0	17.9	17.4	19.9	23.9	11.6	58.0	23.2	11.0	35.0	36.4
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	807	0	411	306	321	272	166	1371	575	106	1534	431
V/C Ratio(X)	1.36	0.00	0.59	0.74	0.83	0.96	0.87	1.70	0.53	1.74	0.73	0.76
Avail Cap(c_a), veh/h	807	0	411	306	321	272	184	1371	575	106	1534	431
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.5	0.0	49.3	56.9	57.9	59.5	64.8	43.5	33.1	67.0	38.5	38.9
Incr Delay (d2), s/veh	171.4	0.0	1.6	7.9	15.1	44.1	28.6	319.6	3.4	369.5	3.2	11.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	35.3	0.0	8.8	9.2	11.6	13.7	7.0	88.3	9.7	15.2	13.4	12.7
LnGrp Delay(d),s/veh	226.9	0.0	50.9	64.8	72.9	103.6	93.4	363.1	36.5	436.5	41.6	50.6
LnGrp LOS	F		D	E	E	F	F	F	D	F	D	D
Approach Vol, veh/h		1343			752			2782			1638	
Approach Delay, s/veh		195.0			81.2			313.5			88.0	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	63.0		29.0	17.6	60.4		38.0
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0
Max Green Setting (Gmax), s	11.0	58.0		25.0	15.0	54.0		34.0
Max Q Clear Time (g_c+I1), s	13.0	60.0		25.9	13.6	38.4		36.0
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	10.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	205.6
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	317	692	376	0	0	0	333	805	373	0	873	649
Future Volume (veh/h)	317	692	376	0	0	0	333	805	373	0	873	649
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				1863	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	345	752	409				347	839	389	0	929	0
Adj No. of Lanes	1	2	0				1	2	1	0	2	1
Peak Hour Factor	0.92	0.92	0.92				0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				2	2	2	0	2	2
Cap, veh/h	603	754	409				355	1888	844	0	991	443
Arrive On Green	0.34	0.34	0.34				0.20	0.53	0.53	0.00	0.28	0.00
Sat Flow, veh/h	1774	2218	1202				1774	3539	1583	0	3632	1583
Grp Volume(v), veh/h	345	599	562				347	839	389	0	929	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1651				1774	1770	1583	0	1770	1583
Q Serve(g_s), s	12.0	25.4	25.5				14.6	10.9	11.4	0.0	19.2	0.0
Cycle Q Clear(g_c), s	12.0	25.4	25.5				14.6	10.9	11.4	0.0	19.2	0.0
Prop In Lane	1.00		0.73				1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	603	602	561				355	1888	844	0	991	443
V/C Ratio(X)	0.57	1.00	1.00				0.98	0.44	0.46	0.00	0.94	0.00
Avail Cap(c_a), veh/h	603	602	561				355	1888	844	0	991	443
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.50	0.50	0.50	0.00	1.00	0.00
Uniform Delay (d), s/veh	20.3	24.7	24.8				29.8	10.7	10.8	0.0	26.4	0.0
Incr Delay (d2), s/veh	0.8	35.7	38.1				28.0	0.4	0.9	0.0	17.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	18.3	17.5				9.9	5.3	5.2	0.0	11.6	0.0
LnGrp Delay(d),s/veh	21.1	60.4	62.9				57.9	11.1	11.7	0.0	43.3	0.0
LnGrp LOS	C	E	F				E	B	B		D	
Approach Vol, veh/h		1506						1575			929	
Approach Delay, s/veh		52.3						21.5			43.3	
Approach LOS		D						C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		45.0		30.0	19.0	26.0		
Change Period (Y+Rc), s		5.0		4.5	4.0	5.0		
Max Green Setting (Gmax), s		40.0		25.5	15.0	21.0		
Max Q Clear Time (g_c+I1), s		13.4		27.5	16.6	21.2		
Green Ext Time (p_c), s		11.5		0.0	0.0	0.0		

Intersection Summary		
HCM 2010 Ctrl Delay		38.2
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	79	426	42	0	257	0	1209	34	170	1079	0
Future Volume (veh/h)	87	79	426	42	0	257	0	1209	34	170	1079	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	0	1863	0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	95	86	463	46	0	279	0	1234	35	185	1173	0
Adj No. of Lanes	0	1	1	1	0	1	0	3	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	310	281	516	0	0	0	0	1647	47	232	1868	0
Arrive On Green	0.33	0.33	0.33	0.00	0.00	0.00	0.00	0.32	0.32	0.13	0.53	0.00
Sat Flow, veh/h	953	862	1583		0		0	5251	144	1774	3632	0
Grp Volume(v), veh/h	181	0	463		0.0		0	823	446	185	1173	0
Grp Sat Flow(s),veh/h/ln	1815	0	1583				0	1695	1837	1774	1770	0
Q Serve(g_s), s	4.1	0.0	15.2				0.0	11.8	11.8	5.5	12.8	0.0
Cycle Q Clear(g_c), s	4.1	0.0	15.2				0.0	11.8	11.8	5.5	12.8	0.0
Prop In Lane	0.52		1.00				0.00		0.08	1.00		0.00
Lane Grp Cap(c), veh/h	591	0	516				0	1098	595	232	1868	0
V/C Ratio(X)	0.31	0.00	0.90				0.00	0.75	0.75	0.80	0.63	0.00
Avail Cap(c_a), veh/h	631	0	550				0	1241	672	292	2137	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	13.8	0.0	17.6				0.0	16.5	16.5	23.1	9.1	0.0
Incr Delay (d2), s/veh	0.3	0.0	16.8				0.0	2.3	4.1	11.5	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	9.0				0.0	5.8	6.6	3.5	6.3	0.0
LnGrp Delay(d),s/veh	14.1	0.0	34.4				0.0	18.8	20.6	34.6	9.6	0.0
LnGrp LOS	B		C					B	C	C	A	
Approach Vol, veh/h		644						1269			1358	
Approach Delay, s/veh		28.7						19.4			13.0	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		21.8		32.8			11.1	21.7
Change Period (Y+Rc), s		4.0		4.0			4.0	4.0
Max Green Setting (Gmax), s		19.0		33.0			9.0	20.0
Max Q Clear Time (g_c+I1), s		17.2		14.8			7.5	13.8
Green Ext Time (p_c), s		0.6		8.1			0.1	3.9

Intersection Summary	
HCM 2010 Ctrl Delay	18.6
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	1509.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	74	1006	79	167	482	137	92	13	172	98	19	31
Future Vol, veh/h	74	1006	79	167	482	137	92	13	172	98	19	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	94	94	94	98	98	98	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	80	1093	86	178	513	146	94	13	176	107	21	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	659	0	0	1179	0	0	2266	2311	1136	2333	2281	586
Stage 1	-	-	-	-	-	-	1296	1296	-	942	942	-
Stage 2	-	-	-	-	-	-	970	1015	-	1391	1339	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	929	-	-	592	-	-	~ 29	38	246	~ 26	40	510
Stage 1	-	-	-	-	-	-	199	232	-	316	342	-
Stage 2	-	-	-	-	-	-	304	316	-	176	222	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	929	-	-	592	-	-	~ 7	24	246	~ 3	26	510
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 7	24	-	~ 3	26	-
Stage 1	-	-	-	-	-	-	182	212	-	289	239	-
Stage 2	-	-	-	-	-	-	181	221	-	~ 43	203	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	2.9	$ 2487.6	$ 19432
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	8	246	929	-	-	592	-	-	4
HCM Lane V/C Ratio	13.393	0.713	0.087	-	-	0.3	-	-	40.217
HCM Control Delay (s)	$ 6481.8	49.3	9.2	-	-	13.7	-	-	$ 19432
HCM Lane LOS	F	E	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	15.1	4.8	0.3	-	-	1.3	-	-	22.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	949	2169	147	398	3	278	23	194	8	40	15
Future Volume (veh/h)	35	949	2169	147	398	3	278	23	194	8	40	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	38	1032	0	160	433	3	320	0	0	9	43	16
Adj No. of Lanes	1	1	1	1	1	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	1089	926	188	1226	8	390	0	174	13	64	24
Arrive On Green	0.03	0.58	0.00	0.11	0.66	0.66	0.11	0.00	0.00	0.06	0.06	0.06
Sat Flow, veh/h	1774	1863	1583	1774	1848	13	3548	0	1583	235	1124	418
Grp Volume(v), veh/h	38	1032	0	160	0	436	320	0	0	68	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	0	1860	1774	0	1583	1777	0	0
Q Serve(g_s), s	2.4	57.8	0.0	9.9	0.0	11.6	9.9	0.0	0.0	4.2	0.0	0.0
Cycle Q Clear(g_c), s	2.4	57.8	0.0	9.9	0.0	11.6	9.9	0.0	0.0	4.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.13		0.24
Lane Grp Cap(c), veh/h	48	1089	926	188	0	1234	390	0	174	101	0	0
V/C Ratio(X)	0.79	0.95	0.00	0.85	0.00	0.35	0.82	0.00	0.00	0.67	0.00	0.00
Avail Cap(c_a), veh/h	111	1163	989	190	0	1245	506	0	226	254	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	54.2	21.7	0.0	49.3	0.0	8.3	48.8	0.0	0.0	51.9	0.0	0.0
Incr Delay (d2), s/veh	23.9	15.0	0.0	29.1	0.0	0.2	8.1	0.0	0.0	7.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	34.1	0.0	6.4	0.0	6.0	5.3	0.0	0.0	2.3	0.0	0.0
LnGrp Delay(d),s/veh	78.1	36.7	0.0	78.3	0.0	8.5	56.9	0.0	0.0	59.4	0.0	0.0
LnGrp LOS	E	D		E		A	E			E		
Approach Vol, veh/h		1070			596			320			68	
Approach Delay, s/veh		38.2			27.2			56.9			59.4	
Approach LOS		D			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		16.3	15.9	69.5		10.4	7.1	78.4
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		16.0	12.0	70.0		16.0	7.0	75.0
Max Q Clear Time (g_c+I1), s		11.9	11.9	59.8		6.2	4.4	13.6
Green Ext Time (p_c), s		0.4	0.0	5.7		0.2	0.0	3.1

Intersection Summary	
HCM 2010 Ctrl Delay	38.6
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

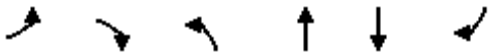
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	1868	415	295	381	5	853	10	1310	32	2	15
Future Volume (veh/h)	28	1868	415	295	381	5	853	10	1310	32	2	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	30	2030	0	321	414	5	935	0	1424	35	2	16
Adj No. of Lanes	1	2	1	1	2	0	2	0	2	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	1486	665	225	1881	23	852	0	1161	121	7	55
Arrive On Green	0.02	0.42	0.00	0.13	0.53	0.53	0.24	0.00	0.24	0.11	0.11	0.11
Sat Flow, veh/h	1774	3539	1583	1774	3581	43	3548	0	3167	1132	65	518
Grp Volume(v), veh/h	30	2030	0	321	204	215	935	0	1424	53	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1855	1774	0	1583	1715	0	0
Q Serve(g_s), s	2.5	63.0	0.0	19.0	9.3	9.3	36.0	0.0	36.0	4.3	0.0	0.0
Cycle Q Clear(g_c), s	2.5	63.0	0.0	19.0	9.3	9.3	36.0	0.0	36.0	4.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	0.66		0.30
Lane Grp Cap(c), veh/h	38	1486	665	225	929	974	852	0	1161	183	0	0
V/C Ratio(X)	0.79	1.37	0.00	1.43	0.22	0.22	1.10	0.00	1.23	0.29	0.00	0.00
Avail Cap(c_a), veh/h	71	1486	665	225	929	974	852	0	1161	183	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	73.0	43.5	0.0	65.5	19.1	19.1	57.0	0.0	47.5	61.8	0.0	0.0
Incr Delay (d2), s/veh	28.7	168.9	0.0	216.6	0.1	0.1	61.2	0.0	109.7	4.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	65.6	0.0	22.8	4.6	4.8	24.9	0.0	41.7	2.2	0.0	0.0
LnGrp Delay(d),s/veh	101.7	212.4	0.0	282.1	19.2	19.2	118.2	0.0	157.2	65.7	0.0	0.0
LnGrp LOS	F	F		F	B	B	F		F	E		
Approach Vol, veh/h		2060			740			2359			53	
Approach Delay, s/veh		210.8			133.3			141.7			65.7	
Approach LOS		F			F			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		40.0	23.0	67.0		20.0	7.2	82.8
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		36.0	19.0	63.0		16.0	6.0	76.0
Max Q Clear Time (g_c+I1), s		38.0	21.0	65.0		6.3	4.5	11.3
Green Ext Time (p_c), s		0.0	0.0	0.0		0.1	0.0	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	167.1
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	33	0	2797	1458	11
Future Volume (Veh/h)	0	33	0	2797	1458	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	36	0	3040	1585	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					352	
pX, platoon unblocked	0.77	0.77	0.77			
vC, conflicting volume	2345	528	1597			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1712	0	744			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	100			
cM capacity (veh/h)	63	838	664			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	36	760	760	760	760	528	528	528	12
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	36	0	0	0	0	0	0	0	12
cSH	838	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.04	0.45	0.45	0.45	0.45	0.31	0.31	0.31	0.01
Queue Length 95th (ft)	3	0	0	0	0	0	0	0	0
Control Delay (s)	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A								
Approach Delay (s)	9.5	0.0				0.0			
Approach LOS	A								

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	43.9%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1255	0	92	484	0	22
Future Vol, veh/h	1255	0	92	484	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1364	0	100	526	0	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1364	0	2090	1364
Stage 1	-	-	-	-	1364	-
Stage 2	-	-	-	-	726	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	504	-	58	181
Stage 1	-	-	-	-	238	-
Stage 2	-	-	-	-	479	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	504	-	47	181
Mov Cap-2 Maneuver	-	-	-	-	47	-
Stage 1	-	-	-	-	191	-
Stage 2	-	-	-	-	479	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	27.9
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	181	-	-	504	-
HCM Lane V/C Ratio	0.132	-	-	0.198	-
HCM Control Delay (s)	27.9	-	-	13.9	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.4	-	-	0.7	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1255	22	0	484	12	0
Future Vol, veh/h	1255	22	0	484	12	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1364	24	0	526	13	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1388	0	1902	1376
Stage 1	-	-	-	-	1376	-
Stage 2	-	-	-	-	526	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	493	-	76	178
Stage 1	-	-	-	-	234	-
Stage 2	-	-	-	-	593	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	493	-	76	178
Mov Cap-2 Maneuver	-	-	-	-	76	-
Stage 1	-	-	-	-	234	-
Stage 2	-	-	-	-	593	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	61.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	76	-	-	493	-
HCM Lane V/C Ratio	0.172	-	-	-	-
HCM Control Delay (s)	61.9	-	-	0	-
HCM Lane LOS	F	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	1006	79	167	482	137	92	13	172	98	19	31
Future Volume (veh/h)	74	1006	79	167	482	137	92	13	172	98	19	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	80	1093	86	178	513	146	94	13	176	107	21	34
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.98	0.98	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	551	1296	102	229	1061	302	246	30	253	134	27	27
Arrive On Green	0.76	0.76	0.76	0.76	0.76	0.76	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	772	1705	134	474	1395	397	1117	187	1583	467	172	170
Grp Volume(v), veh/h	80	0	1179	178	0	659	107	0	176	162	0	0
Grp Sat Flow(s),veh/h/ln	772	0	1839	474	0	1793	1304	0	1583	808	0	0
Q Serve(g_s), s	4.4	0.0	42.9	33.1	0.0	14.0	0.0	0.0	10.5	8.6	0.0	0.0
Cycle Q Clear(g_c), s	18.3	0.0	42.9	76.0	0.0	14.0	7.4	0.0	10.5	16.0	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.22	0.88		1.00	0.66		0.21
Lane Grp Cap(c), veh/h	551	0	1398	229	0	1362	276	0	253	189	0	0
V/C Ratio(X)	0.15	0.00	0.84	0.78	0.00	0.48	0.39	0.00	0.69	0.86	0.00	0.00
Avail Cap(c_a), veh/h	551	0	1398	229	0	1362	276	0	253	189	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.0	0.0	8.0	35.4	0.0	4.6	38.4	0.0	39.7	45.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	4.9	15.5	0.0	0.3	0.9	0.0	8.0	30.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	23.2	5.9	0.0	6.9	2.8	0.0	5.2	6.0	0.0	0.0
LnGrp Delay(d),s/veh	8.2	0.0	12.9	50.9	0.0	4.8	39.2	0.0	47.7	75.6	0.0	0.0
LnGrp LOS	A		B	D		A	D		D	E		
Approach Vol, veh/h		1259			837			283			162	
Approach Delay, s/veh		12.6			14.6			44.5			75.6	
Approach LOS		B			B			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		80.0		20.0		80.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		76.0		16.0		76.0
Max Q Clear Time (g_c+I1), s		12.5		44.9		18.0		78.0
Green Ext Time (p_c), s		0.4		14.9		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.8
HCM 2010 LOS	C

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	8523	9457	8991	5897	10247	8619
Vehs Exited	7384	8695	7980	4763	9372	7637
Starting Vehs	658	666	679	628	612	651
Ending Vehs	1797	1428	1690	1762	1487	1628
Travel Distance (mi)	6003	7290	6580	3507	8128	6302
Travel Time (hr)	5414.3	5471.8	5399.8	6712.5	4942.4	5588.2
Total Delay (hr)	5219.3	5236.8	5187.3	6595.8	4682.0	5384.2
Total Stops	14388	17475	14962	7718	18984	14705
Fuel Used (gal)	1395.1	1442.0	1406.3	1624.0	1343.9	1442.2

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	8523	9457	8991	5897	10247	8619
Vehs Exited	7384	8695	7980	4763	9372	7637
Starting Vehs	658	666	679	628	612	651
Ending Vehs	1797	1428	1690	1762	1487	1628
Travel Distance (mi)	6003	7290	6580	3507	8128	6302
Travel Time (hr)	5414.3	5471.8	5399.8	6712.5	4942.4	5588.2
Total Delay (hr)	5219.3	5236.8	5187.3	6595.8	4682.0	5384.2
Total Stops	14388	17475	14962	7718	18984	14705
Fuel Used (gal)	1395.1	1442.0	1406.3	1624.0	1343.9	1442.2

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Old Tunnel Road	7	361.8	5877.9	0.1	1
SR 24 WB On Ramp	6	96.6	102.2	0.1	2
	17	67.3	166.7	0.1	3
	16	32.6	52.5	0.1	6
	15	30.6	39.1	0.1	9
Acalanes Avenue	14	47.7	56.2	0.1	4
Proj. Driveway	11	27.5	32.9	0.1	6
Stanley Boulevard	5	65.7	72.1	0.1	3
School Dwy.	20	3.9	9.8	0.1	23
School Dwy.	19	1.8	15.8	0.1	31
	18	0.6	6.9	0.1	32
	39	1.2	10.8	0.1	31
Quandt Road	4	7.7	18.4	0.1	23
Reliez Valle Road	3	4.9	17.7	0.1	29
	58	1.0	9.0	0.1	36
Greenvalley Drive	2	4.0	25.0	0.2	34
	22	1.9	17.5	0.2	36
Rancho View Drive	1	3.5	22.8	0.2	35
Total		760.2	6553.3	1.9	7

Arterial Level of Service: SB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Rancho View Drive	1	58.9	194.4	0.2	8
	22	105.9	127.4	0.2	6
Greenvalley Drive	2	125.1	141.7	0.2	4
	58	230.6	253.3	0.2	3
Reliez Valle Road	3	131.4	233.4	0.1	2
Springhill Road	4	170.4	265.3	0.1	3
	39	150.5	162.3	0.1	3
	18	136.1	166.9	0.1	2
School Dwy.	19	74.6	80.8	0.1	3
School Dwy.	20	185.1	198.5	0.1	2
Deer Hill Road	5	89.8	95.4	0.1	2
Proj. Driveway	11	2.0	8.7	0.1	28
Acalanes Avenue	14	0.8	6.3	0.1	31
	15	0.4	7.1	0.1	31
	16	2.9	11.3	0.1	32
	17	3.9	12.5	0.1	20
Mt. Diablo Boulevard	6	14.6	20.6	0.1	11
SR 24 EB Off Ramp	7	19.5	25.7	0.1	8
Total		1502.5	2011.5	2.0	4

Intersection: 1: Pleasant Hill Road & Rancho View Drive

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LTR	L	T	TR	T	TR
Maximum Queue (ft)	220	60	138	160	796	783
Average Queue (ft)	60	13	31	37	247	227
95th Queue (ft)	177	43	103	119	773	764
Link Distance (ft)	311		1096	1096	830	830
Upstream Blk Time (%)	3				19	19
Queuing Penalty (veh)	0				0	0
Storage Bay Dist (ft)		148				
Storage Blk Time (%)			0			
Queuing Penalty (veh)			0			

Intersection: 2: Pleasant Hill Road & Greenvalley Drive

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB	B22	B22
Directions Served	LTR	LT	R	L	T	T	L	T	T	R	T	T
Maximum Queue (ft)	100	203	82	27	165	170	98	928	926	24	1108	1113
Average Queue (ft)	28	42	4	2	42	48	14	369	377	1	340	342
95th Queue (ft)	85	154	34	15	126	141	57	1070	1076	12	1153	1158
Link Distance (ft)	468	522			1186	1186		846	846		1096	1096
Upstream Blk Time (%)								34	34		24	24
Queuing Penalty (veh)								218	219		152	153
Storage Bay Dist (ft)			75	76			95			50		
Storage Blk Time (%)		14	0		2	0		41	42	0		
Queuing Penalty (veh)		4	0		0	0		8	3	0		

Intersection: 3: Pleasant Hill Road & Reliez Valle Road

Movement	EB	EB	NB	NB	NB	SB	SB	SB	B58	B58
Directions Served	L	R	L	T	T	T	T	R	T	T
Maximum Queue (ft)	86	608	246	207	215	516	521	130	1197	1208
Average Queue (ft)	33	243	118	32	43	343	354	20	591	596
95th Queue (ft)	73	636	242	136	147	649	657	99	1520	1528
Link Distance (ft)	600	600		696	696	429	429		1186	1186
Upstream Blk Time (%)		23				55	56		37	38
Queuing Penalty (veh)		0				335	339		225	229
Storage Bay Dist (ft)			230					130		
Storage Blk Time (%)			2				61	0		
Queuing Penalty (veh)			34				28	0		

Intersection: 4: Pleasant Hill Road & Springhill Road/Quandt Road

Movement	EB	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LTR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	635	93	431	205	299	308	84	113	726	761	80
Average Queue (ft)	335	22	186	80	101	114	5	20	497	529	12
95th Queue (ft)	788	91	468	181	258	278	39	84	965	1019	63
Link Distance (ft)	624		506		570	570			696	696	
Upstream Blk Time (%)	42		6						48	58	
Queuing Penalty (veh)	0		0						347	421	
Storage Bay Dist (ft)		100		200			100	105			71
Storage Blk Time (%)	54	17		1	1	6	0	0	65	66	0
Queuing Penalty (veh)	82	6		10	3	3	0	3	16	27	0

Intersection: 5: Pleasant Hill Road & Deer Hill Road/Stanley Boulevard

Movement	EB	EB	EB	B27	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	L	TR	T	L	LT	R	L	T	T	R	L
Maximum Queue (ft)	113	125	357	318	210	536	522	319	356	357	73	201
Average Queue (ft)	104	122	332	287	68	507	263	208	308	310	24	152
95th Queue (ft)	120	127	357	341	211	569	659	395	415	418	58	260
Link Distance (ft)			254	211		504	504	278	278	278	278	
Upstream Blk Time (%)			76	76		85	30	40	38	39		
Queuing Penalty (veh)			1059	1050		0	0	304	287	297		
Storage Bay Dist (ft)	101	101			185							176
Storage Blk Time (%)	40	74	3		0	92						57
Queuing Penalty (veh)	97	181	31		0	149						213

Intersection: 5: Pleasant Hill Road & Deer Hill Road/Stanley Boulevard

Movement	SB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (ft)	282	256	266	75
Average Queue (ft)	202	192	229	58
95th Queue (ft)	348	291	273	99
Link Distance (ft)	229	229	229	
Upstream Blk Time (%)	52	16	56	
Queuing Penalty (veh)	282	85	303	
Storage Bay Dist (ft)				50
Storage Blk Time (%)	13		37	53
Queuing Penalty (veh)	25		120	200

Intersection: 6: Pleasant Hill Road & Mt. Diablo Boulevard/SR 24 WB On Ramp

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	R	T	T	R
Maximum Queue (ft)	307	359	357	203	263	264	75	172	176	134
Average Queue (ft)	293	330	199	65	135	241	39	92	100	24
95th Queue (ft)	337	382	460	180	284	276	98	152	164	93
Link Distance (ft)		325	325	238	238	238		150	150	150
Upstream Blk Time (%)	0	75	22	1	6	67		1	1	0
Queuing Penalty (veh)	0	0	0	3	32	357		4	7	1
Storage Bay Dist (ft)	282						50			
Storage Blk Time (%)	72	11				82	2			
Queuing Penalty (veh)	269	37				319	10			

Intersection: 7: Pleasant Hill Road & SR 24 EB Off Ramp/Old Tunnel Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	L	R	T	T	TR	L	T	T
Maximum Queue (ft)	470	471	464	470	602	617	635	124	230	244
Average Queue (ft)	392	338	328	433	192	439	599	79	126	129
95th Queue (ft)	578	597	639	517	538	734	620	140	230	232
Link Distance (ft)	441	441	436	436	590	590	590		238	238
Upstream Blk Time (%)	51	47	59	90	1	18	99		1	1
Queuing Penalty (veh)	0	0	0	0	0	0	0		4	6
Storage Bay Dist (ft)								100		
Storage Blk Time (%)								5	12	
Queuing Penalty (veh)								28	23	

Intersection: 8: Brown Avenue & Deer Hill Road

Movement	EB	EB	B29	WB	WB	NB	NB	SB
Directions Served	L	TR	T	L	TR	LT	R	LTR
Maximum Queue (ft)	54	783	427	65	65	384	363	382
Average Queue (ft)	10	258	133	22	3	138	150	208
95th Queue (ft)	35	1015	584	56	27	408	426	427
Link Distance (ft)		1076	656		1893	486	486	386
Upstream Blk Time (%)		19	17			16	17	22
Queuing Penalty (veh)		238	213			0	0	0
Storage Bay Dist (ft)	50			50				
Storage Blk Time (%)	1	24		2	0			
Queuing Penalty (veh)	8	20		12	0			

Intersection: 9: First Street/Sierra Vista Way & Deer Hill Road

Movement	EB	EB	EB	WB	WB	B29	NB	NB	NB	SB
Directions Served	L	T	R	L	TR	T	L	LT	R	LTR
Maximum Queue (ft)	59	343	240	174	560	17	319	300	145	109
Average Queue (ft)	9	199	139	102	267	1	248	199	62	54
95th Queue (ft)	34	358	290	202	573	18	412	380	176	106
Link Distance (ft)		325			656	1076	285	285		107
Upstream Blk Time (%)		16			1		61	18		5
Queuing Penalty (veh)		568			7		0	0		0
Storage Bay Dist (ft)	71		215	150					120	
Storage Blk Time (%)	0	33	4	5	32			16	17	
Queuing Penalty (veh)	1	794	40	23	50			33	30	

Intersection: 10: SR 24 WB Ramps/Laurel Drive & Deer Hill Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	TR	L	LT	R	R	LTR
Maximum Queue (ft)	119	505	490	165	200	349	316	283	253	334	328	208
Average Queue (ft)	18	478	477	49	188	303	61	158	133	303	300	68
95th Queue (ft)	81	493	490	172	249	465	213	291	252	322	319	184
Link Distance (ft)		463	463			325	325	285	285	285	285	294
Upstream Blk Time (%)		91	78			50	0	1	0	97	87	0
Queuing Penalty (veh)		0	0			189	0	0	0	0	0	0
Storage Bay Dist (ft)	95			140	175							
Storage Blk Time (%)		89	26	0	76	0						
Queuing Penalty (veh)		27	116	1	156	0						

Intersection: 11: Pleasant Hill Road & Proj. Driveway

Movement	EB	NB	NB	NB
Directions Served	R	T	T	T
Maximum Queue (ft)	44	133	264	251
Average Queue (ft)	17	46	109	98
95th Queue (ft)	35	188	294	268
Link Distance (ft)	292	224	224	224
Upstream Blk Time (%)		13	27	24
Queuing Penalty (veh)		105	215	185
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Proj. Driveway & Deer Hill Road

Movement	EB	B38	WB	WB	B27	NB
Directions Served	TR	T	L	T	T	LR
Maximum Queue (ft)	1148	633	124	297	345	162
Average Queue (ft)	981	436	107	229	227	121
95th Queue (ft)	1489	886	156	413	440	202
Link Distance (ft)	1058	621		211	254	163
Upstream Blk Time (%)	67	38		74	62	64
Queuing Penalty (veh)	912	512		437	366	0
Storage Bay Dist (ft)			100			
Storage Blk Time (%)			82	3		
Queuing Penalty (veh)			429	3		

Intersection: 13: Proj. Driveway & Deer Hill Road

Movement	EB	B28	NB
Directions Served	TR	T	LR
Maximum Queue (ft)	1033	1575	33
Average Queue (ft)	535	672	10
95th Queue (ft)	1316	2057	33
Link Distance (ft)	936	1893	275
Upstream Blk Time (%)	44	23	
Queuing Penalty (veh)	601	322	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Pleasant Hill Road & Acalanes Avenue

Movement	WB	NB	NB	NB	SB
Directions Served	R	T	T	TR	T
Maximum Queue (ft)	161	249	292	269	7
Average Queue (ft)	55	106	122	110	0
95th Queue (ft)	195	365	436	419	5
Link Distance (ft)	470	285	285	285	224
Upstream Blk Time (%)		26	24	22	
Queuing Penalty (veh)		273	257	233	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 15: Pleasant Hill Road

Movement	WB	NB	NB	NB
Directions Served	R	T	T	T
Maximum Queue (ft)	621	184	209	236
Average Queue (ft)	588	63	72	90
95th Queue (ft)	609	251	280	335
Link Distance (ft)	574	244	244	244
Upstream Blk Time (%)	100	22	22	23
Queuing Penalty (veh)	0	156	159	160
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: Pleasant Hill Road

Movement	EB	NB	NB	NB	NB	SB
Directions Served	R	T	T	T	R	T
Maximum Queue (ft)	559	176	174	177	151	142
Average Queue (ft)	528	60	53	60	61	25
95th Queue (ft)	548	246	219	244	258	88
Link Distance (ft)	505	288	288	288	288	244
Upstream Blk Time (%)	96	7	7	8	20	
Queuing Penalty (veh)	0	48	44	51	129	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 17: Pleasant Hill Road

Movement	WB	NB	NB	SB	SB	SB
Directions Served	R	T	T	T	T	TR
Maximum Queue (ft)	507	188	187	17	42	85
Average Queue (ft)	475	109	154	1	2	9
95th Queue (ft)	516	215	202	9	20	48
Link Distance (ft)	458	150	150	288	288	288
Upstream Blk Time (%)	71	36	71			
Queuing Penalty (veh)	0	211	422			
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 18: Pleasant Hill Road

Movement	WB	SB	SB	B39	B39
Directions Served	R	T	T	T	T
Maximum Queue (ft)	33	524	529	605	687
Average Queue (ft)	4	406	411	428	491
95th Queue (ft)	21	713	711	840	957
Link Distance (ft)	82	432	432	570	570
Upstream Blk Time (%)		64	73	53	68
Queuing Penalty (veh)		530	608	442	560
Storage Bay Dist (ft)					
Storage Blk Time (%)		52			
Queuing Penalty (veh)		0			

Intersection: 19: Pleasant Hill Road & School Dwy.

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	T	T
Maximum Queue (ft)	162	81	82	315	297
Average Queue (ft)	79	3	3	223	238
95th Queue (ft)	188	57	58	382	382
Link Distance (ft)	250	654	654	266	266
Upstream Blk Time (%)	1			44	63
Queuing Penalty (veh)	0			370	533
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 20: Pleasant Hill Road & School Dwy.

Movement	WB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	70	688	687
Average Queue (ft)	28	565	625
95th Queue (ft)	59	889	848
Link Distance (ft)	193	654	654
Upstream Blk Time (%)		46	64
Queuing Penalty (veh)		376	526
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 21349

Appendix G – CCCFPD Site Plan Review Letter

Contra Costa County Fire Protection District

April 25, 2011

Mr. Norm Dyer
LCA Architects
245 Ygnacio Valley Road, Suite 200
Walnut Creek, CA 94596

Subject: The Terraces of Lafayette
3233 Deer Hill Road, Lafayette
APN 232-150-027
CCCFPD Project No.: P-C05-11-0496

Dear Mr. Dyer:

We have reviewed the site improvement plans, dated 3/21/11, for a proposed multifamily apartment complex consisting of fourteen (14) two and three story residential buildings, a two-story clubhouse, and a leasing office. The following is required for Fire District approval in accordance with the 2010 California Fire Code (CFC), the 2010 California Building Code (CBC), the California Vehicle Code (CVC), and adopted ordinances:

1. Emergency vehicle access, as shown on Sheets A1, GD-1, GD-2 and GD-3, **does not comply** with the minimum required inside turning radius of 25 feet and the minimum outside turning radius of 45 feet.

   Emergency apparatus access roadways with a driving surface of not less than 20-feet unobstructed width shall be provided to within 150 feet of travel distance to all portions of the exterior walls of every building. Access roadways shall not exceed 20% grade. **Grades exceeding 16% shall be constructed of grooved concrete per the attached Fire District standard.** (503) CFC

2. All access roadways shall have signs posted or curbs painted red with the words ***NO PARKING – FIRE LANE*** clearly marked. (503.3) CFC

3. The dead-end emergency apparatus access roadway at **Building M** shall be provided with approved provisions for the turning around of Fire District apparatus. Contact the Fire District for approved designs. (503.2.5) CFC

4. The developer shall provide an adequate and reliable water supply for fire protection with a minimum fire flow of 1,500 GPM. Required flow must be delivered from not more than one (1) hydrant flowing for a duration of 180 minutes while maintaining 20-pounds residual pressure in the main. (507.1), (B105) CFC

5. The developer shall provide a minimum of nine (9) hydrants of the East Bay type. **Refer to the returned plans for approved hydrant locations.** (C103.1) CFC

6. The developer shall submit three (3) copies of **revised** site improvement plans indicating approved hydrant locations and corrected fire apparatus access for review and approval prior to obtaining a building permit. (501.3) CFC

7. ***Emergency apparatus access roadways and hydrants shall be installed, in service, and inspected by the Fire District prior to construction or combustible storage on site.*** (501.4) CFC

Note: A temporary aggregate base or asphalt grindings roadway is not considered an all-weather surface for emergency apparatus access. The first lift of asphalt concrete paving shall be installed as the minimum roadway material and must be engineered to support the designated gross vehicle weight of 37 tons.

8. The buildings as proposed shall be protected with an approved automatic fire sprinkler system. Submit three (3) sets of plans to this office for review and approval prior to installation. (903.2) CFC, Contra Costa County Ordinance 2010-15

   Note: Fire department connections (FDC) shall be fronting the buildings they serve and shall be accessible to fire apparatus devoid of any visual or physical obstruction between the FDC and the access roadway.

9. The developer shall provide traffic signal pre-emption systems (Opticom) on any new or modified traffic signals installed with this development. (21351) CVC

10. The developer shall submit a computer-aided design (CAD) digital file copy of the subject project to the Fire District upon final approval of the site improvement plans or subdivision map. CAD file shall be saved in the latest AutoCAD® .DXF file format. (501) CFC

11. The developer shall submit three (3) complete sets of building plans and specifications for each building type, including plans for the following required deferred submittals, to the Fire District for review and approval ***prior to*** construction to ensure compliance with minimum requirements related to fire and life safety. Plan review and inspection fees shall be submitted at the time of plan review submittal. (105.4.1), (901.2) CFC, (107) CBC

    - Private underground fire service water mains
    - Fire sprinklers
    - Fire alarm

Our preliminary review comments shall not be construed to encompass the complete project. Additional plans and specifications may be required after further review.

If you have any questions regarding this matter, please contact this office at (925) 941-3300.

Sincerely,

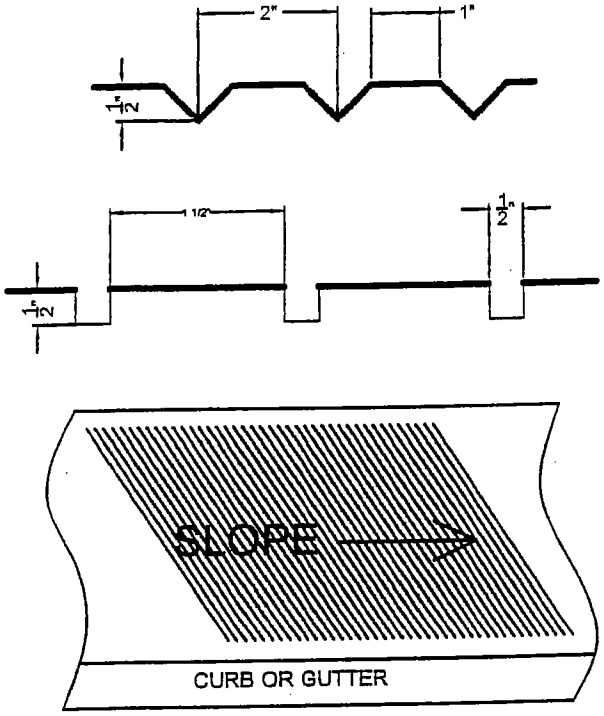
Ted Leach
Fire Inspector

TL/cm

Attachment: Grooved Concrete Detail

c: City of Lafayette
Planning Services Division
3675 Mt. Diablo Boulevard, Suite 210
Lafayette, CA 94549

File: P-C05-11-0496.ltr



GROOVES SHALL BE ANGLED TO PROVIDE DRAINAGE WHERE NECESSARY. 10-45 DEGREES

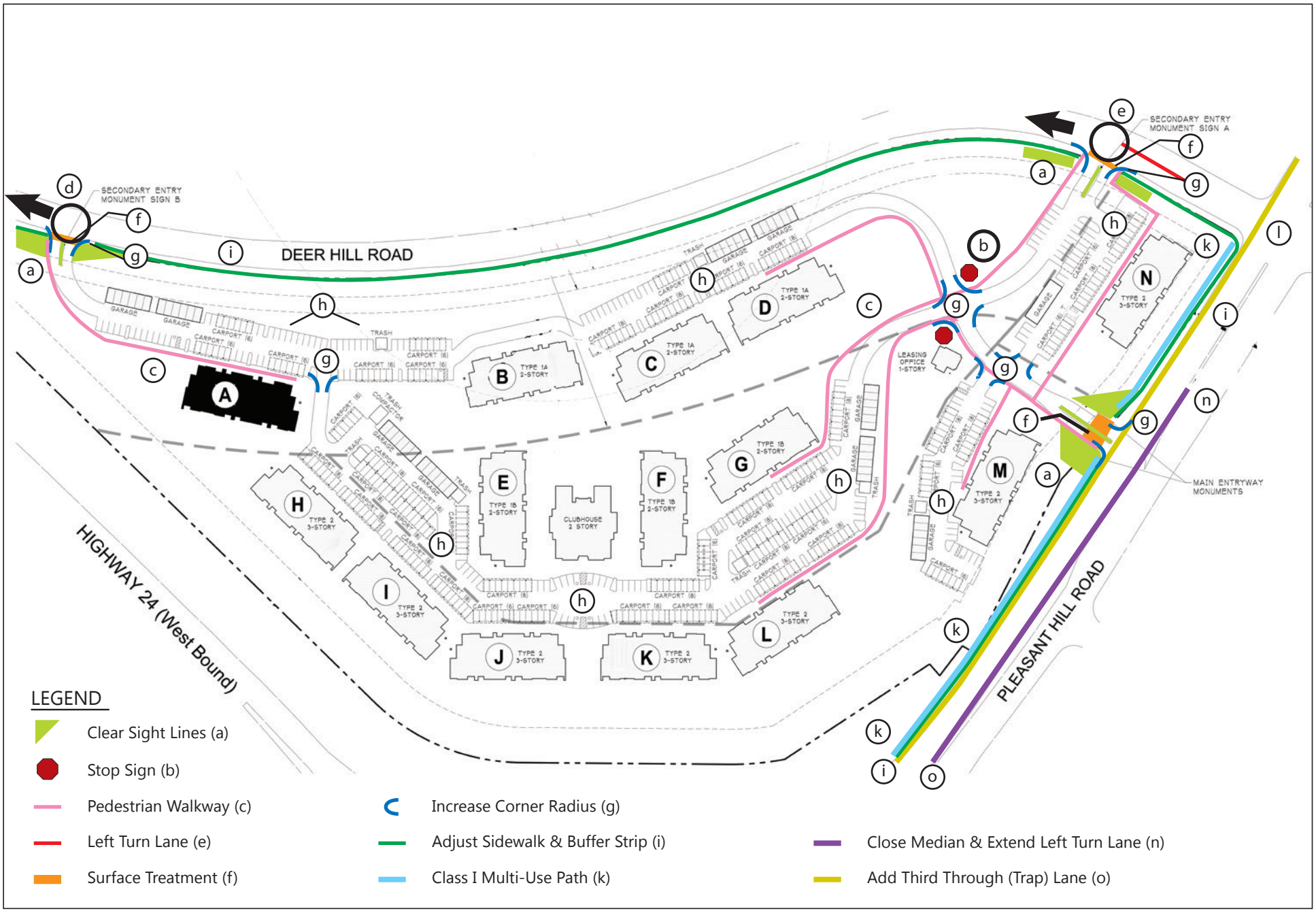
NOTES:

1) GRADE DIFFERENCE BETWEEN INTERSECTING STREET CROSS SLOPE AND CENTERLINE OF PROPOSED ACCESS ROAD IS TO BE NO GREATER THAN 10% FOR 10 FEET STARTING FROM FACE OF CURB OR EDGE OF PAVEMENT. IN NO CASE SHALL GRADE FROM FACE OF CURB OR EDGE OF PAVEMENT BE GREATER THAN 10% WITHIN THE FIRST 10 FEET.
2) WHEN APPROVED BY THE FIRE DISTRICT ACCESS ROADS SERVING NOT MORE THAN TWO (2) SINGLE FAMILY RESIDENTIAL UNITS ACCESIBLE SOLEY BY ENGINE COMPANY RESPONSE AND COMPLETELY PROTECTED BY AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM, THE MAX. GRADE MAY BE INCREASED BUT NOT EXCEED 20%
3) GROOVED CONCRETE IS REQUIRED ON ALL ACCESS ROADS OR DRIVEWAYS OVER 16% GRADE.
4) DIMENSIONS SHOWN ARE APPROXIMATE.
5) FINAL DRIVEWAY INSPECTION IS DONE BY THE FIRE DISTRICT. FINAL PUBLIC AND PRIVATE ROADWAYS INPECTION IS DONE BY LOCAL BUILDING AND GRADING DEPARTMENT.

GROOVED CONCRETE DRIVEWAY DETAIL

APPROVED BY:	CONTRA COSTA COUNTY FIRE PROTECTION DISTRICT 2010 GEARY ROAD, PLEASANT HILL, CA 94523 (925) 941-3300	DATE: 03/25/05 SCALE: NONE DWG NO.: FPS-001-D3

Appendix H – Refinements to September 2011 Site Plan



Source: LCA Architects

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