TECHNICAL MEMORANDUM

Date: June 22, 2020

To: Nancy Tran
City of Lafayette
ntran@ci.lafayette.ca.us

Project No.: 007-037

From: Chris Kinzel
Vice President

Renee Powell
Project Engineer

Jurisdiction: Lafayette

Subject: ***Response to Planning Commission Requests and Caltrans Comments Regarding Terraces of Lafayette TIS***

The purpose of this memorandum is to address questions and requests received from members of the Planning Commission at its meeting on May 18, 2020, and comments in a letter from Caltrans staff dated June 9, 2020.

DATA SOURCES FOR DELAY INDEX ANALYSIS

Commissioners raised questions about the data source selected for the traffic impact study's analysis of the Project's impacts related to delay index , give the availability of two sets of delay index monitoring results published by CCTA in 2013 (final) and 2017 (draft only), as well as Caltrans Freeway Performance Measurement System (PeMS) data regarding highway speeds based on continuous reporting at in-road sensors on freeways including SR-24.

The 2013 (final) and 2017 (draft) CCTA delay index monitoring results were only relevant to the analysis of the Project's delay index impacts on Pleasant Hill Road and SR-24. New intersection turning movement counts (TMC) ordered by TJKM for the January 7, 2020, Traffic Impact Study Report (TIS) and collected in April and May 2019 at all study intersections form the basis for the majority of the traffic operations analysis conducted for the TIS. This data was used for calculating level of service (LOS), queuing operations, and all traffic simulations conducted using Synchro/SimTraffic software. Counts were collected on April 30 and May 2, 2019.[1]

[1] Refer to section 4.1.1 "Data Collection & Adjustments" of the TIS for more detail. For the Cumulative (2040) Conditions analysis, 2019 traffic volumes were scaled by a growth factor derived from the CCTA travel demand model. This process is described in TIS section 4.1.2 "Growth Factor for Cumulative Conditions".

TJKM used CCTA travel demand model files obtained from CCTA staff, for both the validated baseline year of 2018 and horizon year of 2040. These models were used to generate roadway link volumes for calculating congested travel times for the delay index analysis.[2] The model results represent relative changes, which are then applied to observed data. The manual trip distribution and assignment used for the Synchro analysis was used to assign project trips to the roadway network for the delay index analysis.

Delay Index Monitoring Results

In accordance with the Measure J Growth Management Program (GMP), local Action Plans for Routes of Regional Significance (RORS) establish Multimodal Transportation Service Objectives (MTSOs). CCTA conducts periodic monitoring of these MTSOs and publishes monitoring reports. For the TIS, the MTSO of Delay Index (DI) applied to Pleasant Hill Road and SR-24. As the 2017 MTSO monitoring report was in draft form only, without appendices containing data sources, TJKM also evaluated the finalized 2013 MTSO monitoring report and, after determining that it was the more reliable data set, used the 2013 MTSO monitoring data as the basis for projecting 2019 traffic volumes for purposes of analyzing the Resumed Project's delay index impacts. TJKM's technical memorandum dated May 15, 2020, in response to the Elite Transportation Group peer review, provides detailed information on how TJKM compared both monitoring reports and ultimately selected the finalized 2013 monitoring results for use in this study. This is also expanded upon below.

Several aspects of the 2017 monitoring report data made reliance upon it questionable, and TJKM therefore determined whether it could be validated by reviewing a third data set, the 2019 Caltrans PeMS traffic monitoring data. Specifically, the 2017 CCTA monitoring report:

1. was in draft form only, and had not been finalized;
2. used a new, relatively untested methodology (based on aggregated cell phone-based data);
3. did not include appendices containing data sources;
4. was unclear as to whether the SR-24 data included vehicles on both the mainline (generally faster) and on freeway ramps (generally slower); and
5. indicated delay amounts that did not seem consistent with existing conditions as observed by TJKM and City staff.

For those reasons, TJKM and staff agreed to review the 2019 PeMS traffic monitoring data collected by Caltrans, in order to determine which of the two CCTA MTSO monitoring data sets

[2] These CCTA model files were also used for calculating a traffic volume growth rate to project 2040 intersection volumes for purposes of analyzing LOS and queuing impacts.

was more reliable. Caltrans maintains the PeMS to collect, filter, process, aggregate, and examine traffic data, including a website to allow transportation professionals to access this data. Instantaneous traffic speeds are one type of data collected continuously by in-road loop detectors. The 2019 Caltrans data much more closely resembled the projections of 2019 conditions based on the 2013 CCTA monitoring data than based on the 2017 data. Therefore, this validation process supported the use of the 2013 data rather than the 2017 data as the more accurate and reliable data set.

The 2013 CCTA data methodology also more closely resembled the methodology used in the 2012 TIS and certified 2013 FEIR for the Original Project, enabling a better apples-to-apples comparison of the impacts of the Original Project and the Resumed Project. In particular, TJKM noted that a large increase in peak direction delay index (DI) between the 2013 and 2017 MTSO monitoring reports coincided with a change in data collection methodology. The 2013 monitoring used floating car surveys to establish travel times, but the 2017 monitoring used aggregated cell phone-based data (INRIX Analytics speed data). These increases between 2013 and 2017 caused the peak direction DI on southbound Pleasant Hill Road and eastbound SR-24 to degrade from acceptable to unacceptable. Both exceeded the 2040 projections included in the Lamorinda Action Plan (2017), which were based on 2013 monitoring results. As mentioned above, the 2017 monitoring report was a draft version and did not include any raw data collection sheets, whereas the 2013 report included all travel time data collected.

In responding to comments from Elite Transportation Group on behalf of Save Lafayette in our memorandum dated May 15, 2020, TJKM re-reviewed the delay index analysis and findings of significance on both SR-24 and Pleasant Hill Road, as described below.

As part of the traffic study, the Caltrans traffic speed data from PeMS was used to evaluate the 2013 and 2017 monitoring results to aid in selecting the most appropriate data to use. Specifically, the SR-24 delay index projections for 2019, using each set of monitoring data as a baseline, were compared to actual 2019 delay index based on PeMS traffic speeds in November 2019. It was determined that the SR-24 delay index projections for 2019 that utilized the 2013 monitoring data as a baseline more closely resembled actual 2019 conditions. After TJKM and City staff met with Caltrans staff to discuss the use of the 2013 monitoring data, Caltrans submitted a letter dated June 9, 2020, in which Caltrans staff "acknowledge[d] that the 2013 floating car run data can likely be a more accurate method to document travel time and delay compared to the 2017 cell phone data."

As mentioned above, it was unclear whether the 2017 SR-24 data may have included vehicles on both the mainline (generally faster) and on freeway ramps (generally slower). The peak hour traffic speed data available from PeMS monitoring stations on SR-24 in the study area were checked for midweek, non-holiday conditions in November 2019 to estimate current DI at the time of the study. This was then compared to the projected DI in 2019 and 2040 obtained by

the CCTA methodology, using the travel demand model to calculate annual growth and either 2013 or 2017 monitoring data as a baseline, or using the 2019 PeMS data as a baseline. As explained in more detail in TJKM's May 15, 2020, memorandum, using the 2019 PeMS data as an alternative baseline for projected 2040 conditions confirmed the conclusion of the 2020 TIS that the Resumed Project's delay index impacts related to SR-24 in both peak directions under all scenarios would be less than significant.

The Caltrans PeMS system does not monitor traffic on Pleasant Hill Road and, thus, for the analysis of delay index impacts on Pleasant Hill Road, a third data source was not available to validate the MTSO monitoring results. The TIS used the 2013 CCTA monitoring data as the baseline for projecting traffic delay index impacts on the Pleasant Hill Road corridor for consistency with the SR-24 analysis. As explained in more detail in TJKM's May 15, 2020, memorandum, both 2013- and 2017-based projections would result in less than significant impacts in 2019, and impacts in only the northbound p.m. peak direction under the Resumed Project in 2040. The May 15, 2020, memorandum also concluded that both 2013- and 2017-based projections showed that the Project Variant (without the additional southbound "trap" lane on Pleasant Hill Road) would result in less than significant impacts in 2019, and impacts in both peak directions in 2040. In all cases, the degree of impact along Pleasant Hill Road was similar. Therefore, there would be no difference in the conclusions regarding the significance of delay index impacts on Pleasant Hill Road, regardless of whether DI projections use 2013 or 2017 monitoring data as a baseline.

We also note that the 2020 TIS used the estimates of the Project's automobile trip generation developed for the 2012 TIS used in the certified 2013 FEIR analysis, which are more conservative than those that would be estimated using current methodologies. Estimated project trip generation was based on published data from the Institute of Transportation Engineers (ITE) publication *Trip Generation (8th Edition)*, published in 2008. As detailed in section 9.1 "Alternative Trip Generation" of the 2020 TIS, the 2008 trip generation rates used for the analysis produce higher, more conservative estimates of project trips than newer trip generation rates based on newer data included in the ITE 2017 *Trip Generation (10th Edition)*. Project trips were distributed throughout the project vicinity using the same distribution percentages as were used in 2012. Trip assignments were generally identical to the 2012 study, with minor differences at driveways and at the intersection of Pleasant Hill Road & Deer Hill Road/Stanley Boulevard related to changes in project access. These assigned project trips were used to calculate "plus project" conditions for intersection LOS and queuing, SimTraffic simulation, and delay index calculations.

CALTRANS COMMENTS

Following a meeting with City staff and TJKM, Caltrans staff provided follow-up comments on the subjects of SR-24 delay index and queuing on the westbound SR-24 off-ramp to northbound Pleasant Hill Road in a letter dated June 9, 2020.

SR-24 Delay Index

Caltrans staff concurred with the use of 2013 monitoring data as the baseline for the SR-24 delay index analysis, but requested that the discussion of the baseline data consider the opening of the Caldecott Tunnel's fourth bore at the end of 2013 and the economic recovery and growth that had occurred since the recession.

TJKM agrees that these external changes would have affected traffic patterns in some way. However, no specific peak direction traffic changes can be directly attributed to either factor. As Caltrans' letter states, the Caldecott Tunnel fourth bore's "main benefit was in the non-commute directions in EB am and WB pm commute directions." Therefore, it would not be expected to substantially increase traffic in the westbound am and eastbound pm peak period delay directions. Although the afternoon peak period delay (eastbound) has substantially increased since 2013, morning peak period delay (westbound) has actually decreased. Off-peak delay index, which is not evaluated for CEQA purposes, has decreased in both directions to some degree.

As noted above, TJKM's technical memorandum dated May 15, 2020, provides additional detailed information about the monitoring results and comparisons with PeMS data. The use of PeMS speed data to validate one or the other monitoring report showed both over- and under-stated delays for 2019 projections. Using the 2019 PeMS data as an alternative baseline for projected 2040 conditions confirms the significance findings contained in the original TIS. This in turn confirms that the external traffic changes noted by Caltrans staff since the 2013 monitoring report do not materially affect the conclusions of the 2020 TIS.

Ramp Queuing

Caltrans raised questions about how much traffic the project would be adding to the westbound SR-24 off-ramp to northbound Pleasant Hill Road, and as a result how the project traffic may impact SR-24 mainline traffic. Existing traffic volumes, added project trips, and existing plus project volumes can be found in Figures 5, 6, and 7 of the traffic impact study report, respectively. The p.m. peak hour is when the highest volume of project trips would be added to this ramp terminal (intersection #15) and result in the highest Existing plus Project volume. The project is expected to add 30 new vehicles to an Existing volume of 519 vehicles during the p.m. peak hour, an increase of approximately six percent.

It should be noted that backups on this ramp extending to the SR-24 mainline exist under current conditions, and they are largely a result of high conflicting volumes on northbound

Pleasant Hill Road that slow down rate at which vehicles can merge onto Pleasant Hill Road. Although there are no adopted quantitative significance thresholds for evaluating this type of queuing impact, the amount of traffic added to the off-ramp is relatively low. It is not expected that the added project traffic would result in any significant impact on the SR-24 mainline.

EVACUATION OPERATIONS

Concerns have been raised about the effect of the proposed project on evacuation procedures along Pleasant Hill Road, particularly the effect of adding many more evacuating vehicles between existing homes and SR-24. In order to evaluate these effects, TJKM and City staff studied published evacuation procedures and consulted with representatives from the Contra Costa County Fire Protection District (CCCFPD), Lafayette Police Department, Lamorinda Community Emergency Response Team (CERT), County Connection, and school districts. Based on input received from these agencies, TJKM developed a set of assumptions to approximate a "worst case" evacuation scenario against which to compare the project under both a.m. and p.m. peak period conditions. The Synchro model developed for the Traffic Impact Study Report (TIS) was used to simulate traffic conditions with and without the proposed project, during such an evacuation. It must be noted that many of the assumptions listed below are extremely conservative and would lead to higher traffic volumes and worse signal operations than are likely to occur during an actual emergency, and they disregard the benefits of active evacuation management by Lafayette Police personnel.

Evacuation Scenario Development

Data sources used in developing this evacuation scenario include:

- *Lafayette Emergency Operations Plan* (2018), City of Lafayette
- *Sonoma County, CA: Post-Wildfire Evacuation Survey* (2017), Chicago Area Model Users Group
    - This survey provided data on how many vehicles residents evacuated in per household during the Tubbs Fire. On average, there were 1.75 evacuating vehicle per household.
- *Average School-Age Children per Home* (2017), National Association of Home Builders
    - This study compiled data from the American Community Survey (2017) for average school age children (ages 5-18) per dwelling unit, broken down by housing type, owner- or renter-occupied, and state. In California, there are approximately 54 school-age children per 100 owner-occupied single family homes.
- Total households in each evacuation area (current), City of Lafayette
- Manual counts of homes outside of designated evacuation zones and along alternate access points to Pleasant Hill Road, Google Maps
- Attendance boundaries for Springhill Elementary School and Acalanes High School
- County Connection bus fleet characteristics

    - Buses would most likely be sent from the maintenance facility in Concord. The fleet largely consists of a mix of 30-ft. and 50-ft. buses, with total capacities of 50 and 70 passengers, respectively.
- Synchro traffic model from TIS: a.m. and p.m. peak period timing plans

Key assumptions and simplifications include:

- All Lafayette evacuation zones between Taylor Boulevard and SR-24 which can be evacuated via Pleasant Hill Road would only use Pleasant Hill Road, even if other potential evacuation routes exist. The Lafayette Emergency Operations Plan identifies these as zones 4, 5, 6, and 7. Homes outside these zones that would require evacuation via Pleasant Hill Road were also included.
- No evacuation zones would utilize secondary evacuation routes, e.g. northbound on Reliez Valley Road or eastbound on Camino Diablo or Springbrook Road.
- All evacuation zones would be given mandatory evacuation orders at the same time.
- All homes to be evacuated would be occupied and have residents at home.
- No residents would have evacuated early, as could be expected under an evacuation warning that likely would precede an evacuation order.
- Once the evacuation order is given, no new non-evacuation traffic would enter Pleasant Hill Road from the north.
    - In an actual emergency, this would likely be achieved relatively quickly through a combination of radio traffic alerts, emergency text notifications, road closures by emergency personnel, or drivers seeing smoke.
- Both Springhill Elementary School and Acalanes High School would need to evacuate their maximum enrollment.
    - Although the proposed Terraces development would be expected to add new students to both Springhill Elementary School and Acalanes High School, these new students would not cause the total number of enrolled students to exceed those maximum enrollment.
- The expected numbers of students at each school residing in each evacuation zone were also calculated, and it was assumed that parents of these students would divert to the schools on their way south to pick up them up. The rest of the students would be evacuated via buses, provided by County Connection, to an off-site location in downtown Lafayette.
- All existing traffic lanes would operate normally.
- Traffic signals on Pleasant Hill Road would operate normally, based on either a.m. or p.m. peak period coordinated signal timing plans.
- In “plus project” evacuation scenarios, all Terraces of Lafayette residents would evacuate onto Pleasant Hill Road. No residents would evacuate via Deer Hill Road.
- All evacuating vehicles would use SR-24 to leave Lafayette. 50 percent would travel westbound, and 50 percent would travel eastbound.

Based on the assumptions and data sources used to develop the evacuation scenarios, the following caveats must be considered:

- Police would make every effort to provide residents advanced warning of impending evacuations, via evacuation warnings, and they would attempt to stagger triggering evacuation orders by zone to manage traffic congestion.
- Police would dispatch emergency personnel to key intersections in order to manage evacuation traffic as needed, potentially speeding up evacuation from side streets and traffic progression.
- Police has the option to convert all lanes of Pleasant Hill Road to operate in the same direction (contra-flow), to temporarily increase roadway capacity. This procedure was tested successfully in 2019. The traffic simulation did not assume contra-flow.
- In zones 5 (Reliez Valley) and 7 (Stanley Boulevard/Camino Diablo), residents can evacuate using alternative routes and avoid using Pleasant Hill Road. It is unlikely that an emergency would block access to these alternate routes in both evacuation zones at the same time.
- Depending on the time of day when an evacuation occurs, it is highly unlikely that every household included in this evacuation scenario would be occupied and need to evacuate, and that the schools would also be fully occupied and need to evacuate their entire student body at the same time. Residents might instead be out of town, at work, or asleep (and thus not at school).
- One or both schools may instruct parents not to attempt to pick up their students from the school. Evacuation of students to an off-site location for pick-up is common. This would result in a reduction in turning vehicles at Springhill Road and Stanley Boulevard, reducing traffic signal delay and improving corridor operations.

As shown in **Table 1**, it is expected that there would be 1,803 existing households evacuating, with a total of 3,157 vehicles. The proposed project would add 315 new households, with a total of 551 new vehicles. Based on these numbers and the locations of each evacuation zone relative to the schools, there are approximately 264 students at Springhill Elementary School and 276 students at Acalanes High School who could be picked up by their parents as they drove toward SR-24. As shown in **Table 2**, the remaining students would be evacuated by 5 buses for Springhill Elementary School and 22 buses for Acalanes High School.

Selected reference data and screen shots of the Synchro network showing the evacuation traffic volumes at study intersections are included in the **Appendix**.

Table 1 – Evacuation Trip Generation

Evacuation Zone/Evacuation Route	Size		Evacuating Vehicles		Pass-By Student Pickups		
			Vehicles/ DU	Vehicles	Students / DU	Springhill Elementary	Acalanes High School
4 - Springhill Road							
All	247	DU	1.75	432	0.54	57	38
5 - Reliez Valley							
Reliez Valley Road	642	DU	1.75	1,124	0.54	147	98
Green Valley Road (W)	24	DU	1.75	42	0.54	6	4
Rancho View Drive	74	DU	1.75	130	0.54	17	11
6 - Quandt Road							
All	147	DU	1.75	257	0.54	34	22
7 - Stanley Blvd./Camino Diablo							
All	382	DU	1.75	669	0.54	0[1]	58
Other SB from N. Lafayette							
Private Road (N/O Townsend Pl.)	4	DU	1.75	7	0.54	1	1
Townsend Place	4	DU	1.75	7	0.54	1	1
Private Road (N/O Rancho View Dr.)	6	DU	1.75	11	0.54	1	1
Non-Lafayette							
Green Valley Road (E) - Summit Ridge	161	DU	1.75	282	0.54	0[2]	25
Green Valley Road (E) - Beacon Ridge	112	DU	1.75	196	0.54	0[2]	17
Terraces Development (Project)							
All	315	DU	1.75	551	0.54	0[1]	0[1]
Total – No Project	**1,803**	**DU**		**3,157**		**264**	**276**
Total – With Project	**2,118**	**DU**		**3,708**		**264**	**276**

Notes:

[1] Only parents who can pick up their students while traveling southbound toward SR-24 are included. No pass-by pickups were permitted for zones located to the south of the applicable school. All other students would be evacuated by bus.

[2] Non-Lafayette residents add students to Acalanes High School only.

Table 2 – School Evacuation

School	Total Enrollment[1]	Parent Pick-Ups	Remaining Students	Buses Required
Springhill Elementary School	530	264	266	5
Acalanes High School	1,400	276	1,124	22

Notes:

[1] Based on maximum enrollment. Existing enrollment and existing plus project enrollment would be lower.

Analysis Results

Although the TIS considered both isolated intersection operations and traffic simulation for a variety of specific impacts, this evacuation analysis focuses on the upstream impacts of adding 551 southbound vehicles from the Project close to the southern end of the Pleasant Hill Road corridor. No new traffic was added to the upstream study intersections from Rancho View Drive to Deer Hill Road/Stanley Boulevard, although the proposed project would alter the lane geometry of the Pleasant Hill Road & Deer Hill Road/Stanley Boulevard intersection. As such, the majority of the evacuations analysis is based on traffic simulation, which can account for interactions between intersections due to congestion and gridlock.

As shown in **Table 3**, the level of service (LOS) at the study intersections varies from LOS A to severe LOS F. This is due to the relative volumes on different turning movements. At both Pleasant Hill Road & Rancho View Drive and Pleasant Hill Road & Reliez Valley Road, all evacuating traffic is either turning right onto Pleasant Hill Road or traveling southbound through the intersection, with no extra signal delays added by conflicting movements. At Pleasant Hill Road & Greenvalley Road, the high average delay can be largely attributed to the relatively large westbound left turning volume. At Pleasant Hill Road & Springhill Road/Quandt Road, there are large westbound left turning and through volumes. At Pleasant Hill Road & Deer Hill Road/Stanley Boulevard, there are large left turn volumes on both the southbound and westbound approaches. Neither signal timing plan (a.m. or p.m. peak) consistently performed better across all intersections.

With the proposed project, the southbound capacity at Pleasant Hill Road & Deer Hill Road/Stanley Boulevard would be increased by the addition of the proposed trap lane. This would result in reduced overall delay and reduced delay on the westbound approach. None of the other intersections would be affected by the proposed project, and the project variant would have no effect at any study intersection.

Table 3. Isolated Intersection Analysis – Level of Service

ID	Study Intersection	Timing Plan	No Project			Proposed Project				
			Delay[2]	LOS	Side St. Delay	Delay	LOS	Side St. Delay	Change in Delay	Change in Side St. Delay
1	Pleasant Hill Road & Rancho View Drive	AM	20.4	C	*23.0*	-	-	-	-	-
		PM	11.9	B	*12.0*	-	-	-	-	-
2	Pleasant Hill Road & Greenvalley Drive	AM	**268.2**	**F**	*375.1*	-	-	-	-	-
		PM	**79.4**	**E**	*108.1*	-	-	-	-	-
3	Pleasant Hill Road & Reliez Valley Road	AM	0.2	A	*0.0*	-	-	-	-	-
		PM	0.4	A	*0.0*	-	-	-	-	-
4	Pleasant Hill Road & Springhill Road/ Quandt Road	AM	**66.4**	**E**	*147.7*	-	-	-	-	-
		PM	**197.9**	**F**	*23.0*	-	-	-	-	-
5	Pleasant Hill Road & Deer Hill Road/Stanley Boulevard	AM	**349.9**	**F**	*797.2*	**231.1**	**F**	*724.9*	-118.8	*-72.3*
		PM	**483.4**	**F**	*1282.3*	**387.4**	**F**	*1261.1*	-96.0	*-21.2*

Notes:

[1] Average delay expressed in seconds. Side street delay reported for the worse side.

Bold indicates intersection operates at unacceptable LOS. **Red** indicates a significant impact.

Under the no project evacuation conditions, the average speed on southbound Pleasant Hill Road from Taylor Boulevard to SR-24 would be approximately 7-8 mph, with a total travel time of more than 12 minutes. The project would add 515 new evacuating vehicles to the expected 3,157 evacuating vehicles, with the proposed project also adding a trap lane for the SR-24 westbound on-ramp and a through lane at Pleasant Hill Road & Deer Hill Road/Stanley Boulevard. The proposed project would slightly improve evacuation operations, resulting in an overall increase in speed to approximately 9-11 mph, and the travel time along the length of the corridor would be reduced by more than a minute (73.1-287 seconds reduction). Even without the added capacity, the project variant (without the additional southbound lane on Pleasant Hill Road) would have a negligible effect on evacuation operations, with travel speed decreasing by 0.11-0.13 mph and increasing total travel time along the length of the corridor by 10.3-16.4 seconds.

Table 4. Southbound Pleasant Hill Road – Simulated Travel Times

Timing Plan	No Project		Proposed Project				Project Variant			
	Travel Time (sec)	Speed (mph)	Travel Time (sec)	Speed (mph)	Time Change	Speed Change	Travel Time (sec)	Speed (mph)	Time Change	Speed Change
AM	**757.2**	**8.08**	**684.1**	**8.95**	**-73.1**	**0.86**	**767.5**	**7.97**	**10.3**	**-0.11**
PM	**850.3**	**7.20**	**563.3**	**10.86**	**-287**	**3.67**	**866.7**	**7.06**	**16.4**	**-0.14**

In order to evaluate the effect of the project on residents attempting to evacuate onto southbound Pleasant Hill Road, simulated queue lengths on the side street approaches of upstream intersections were analyzed. If downstream traffic on a roadway is slowed down or experiences increased congestion and gridlock, this can make it more difficult for drivers to turn from side streets onto the main road. This would in turn result in longer queue lengths on those side streets. Queue lengths were also analyzed at dedicated turn lanes serving vehicles turning onto the side streets leading to Springhill Elementary School and Acalanes High School.

As shown in **Table 5**, the project would have no consistent impact on side street queue lengths: both the proposed project and project variant would increase some queue lengths and decrease other, under one or both (a.m. and p.m. peak period) signal timing plans. No queue lengths would increase by more than one car length, or 25 ft. In general, the proposed project would produce greater queue reductions, and smaller queue increases, than the project variant. This is consistent with the results in **Table 4**, which indicate that traffic would flow more quickly due to increased southbound capacity near the project site. It should be noted that the relative changes in queue lengths on side streets are likely to be imperceptible, particularly on streets where queues might extend to 20 vehicle lengths (500 feet) or more.

Table 5. Side Streets & Turn Lanes - Simulated Queue Operations

ID	Study Intersections	Lane Group	Timing Plan	No Project Queue Length	Proposed Project		Project Variant	
					Queue Length	Change in Queue	Queue Length	Change in Queue
1	Pleasant Hill Road & Rancho View Drive	Eastbound	AM	75	70	-5	75	0
			PM	65	70	5	70	5
2	Pleasant Hill Road & Greenvalley Drive	Eastbound	AM	35	40	5	35	0
			PM	45	30	-15	35	-10
		Westbound	AM	665	635	-30	645	-20
			PM	710	720	10	720	10
3	Pleasant Hill Road & Reliez Valley Road	Eastbound	AM	630	625	-5	610	-20
			PM	655	590	-65	640	-15
4	Pleasant Hill Road & Springhill Road/ Quandt Road	Eastbound	AM	355	355	0	355	0
			PM	350	355	5	350	0
		Westbound	AM	245	255	10	260	15
			PM	245	230	-15	245	0
		Northbound Left	AM	15	15	0	10	-5
			PM	10	5	-5	5	-5
		Southbound Right	AM	140	140	0	140	0
			PM	135	135	0	135	0
5	Pleasant Hill Road & Deer Hill Road/ Stanley Boulevard	Westbound Left	AM	305	275	-30	300	-5
			PM	290	265	-25	280	-10
		Westbound Left/Through	AM	545	545	0	540	-5
			PM	540	540	0	540	0
		Northbound Right	AM	35	35	0	35	0
			PM	35	30	-5	30	-5
		Southbound Left	AM	335	310	-25	350	15
			PM	340	285	-55	345	5

Note: Simulated queue lengths are rounded to the nearest five feet. For queue increases of less than 25 feet, no additional vehicles would appear in the lane(s).

Discussion

TJKM analyzed a "worst case" evacuation scenario for Pleasant Hill Road, with 1,803 existing households all evacuating toward SR-24 at the same time, operating under either a.m. peak or p.m. peak period signal timing plans. Based on simulations of no project conditions using the traffic model developed for the traffic impact study, it is estimated that southbound average travel speeds from Taylor Boulevard would be approximately 7-8 mph, with a total travel time of more than 12 minutes. Side street queues would be long at most of the intersections north of the project. The proposed project would increase capacity on the short segment of Pleasant Hill Road near the project, including adding capacity to the intersection of Pleasant Hill Road & Deer Hill Road/Stanley Boulevard and a trap lane providing additional capacity for southbound vehicles entering westbound SR-24. This added capacity would generally improve evacuation operations, more than compensating for the additional traffic generated by the 315 new homes. Traffic simulations indicate that the project variant without the additional capacity would have a negligible impact on evacuation operations along the corridor. Neither the

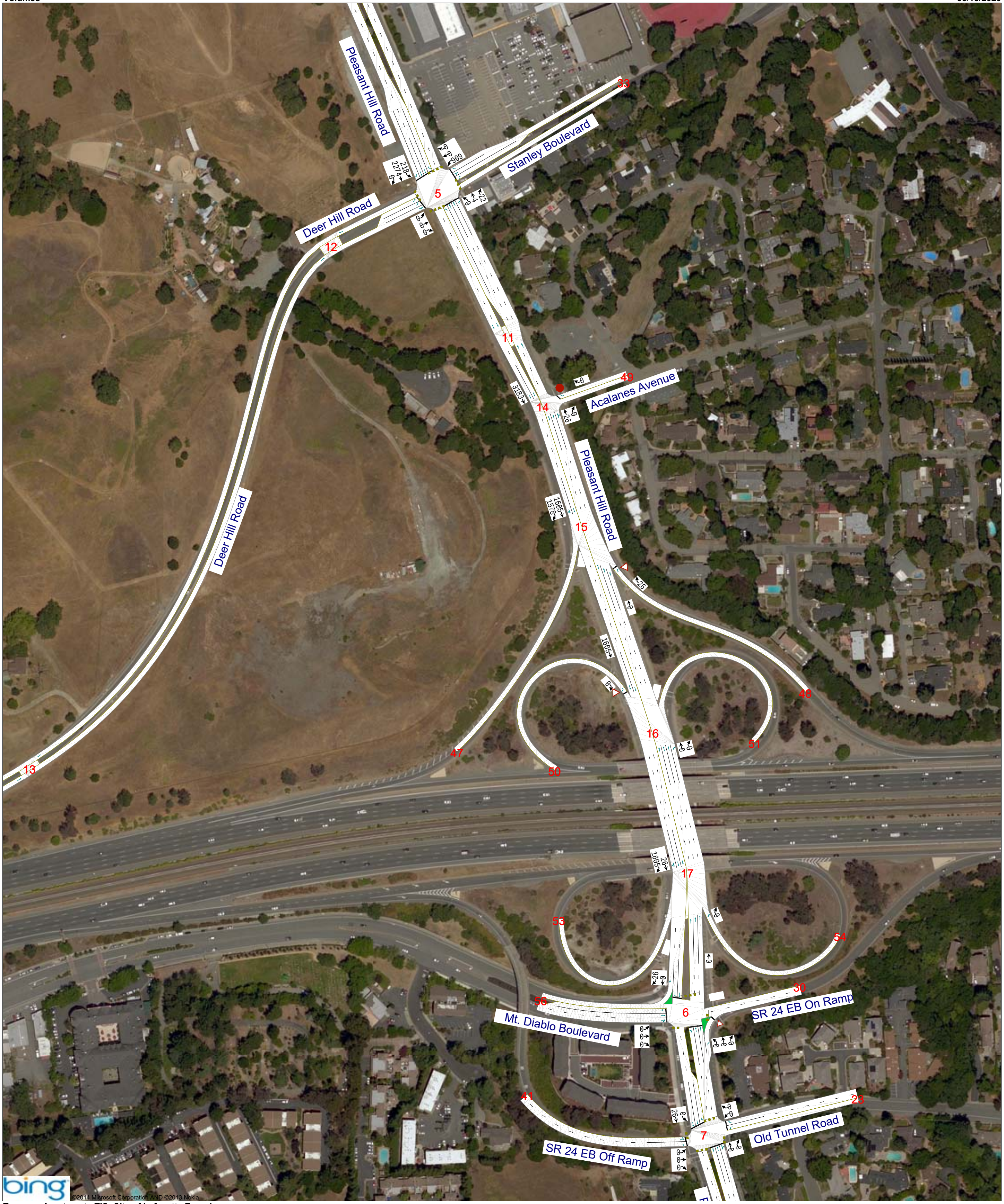
proposed project nor the project variant is expected to generate any significant impacts related to emergency evacuation along the Pleasant Hill Road corridor.

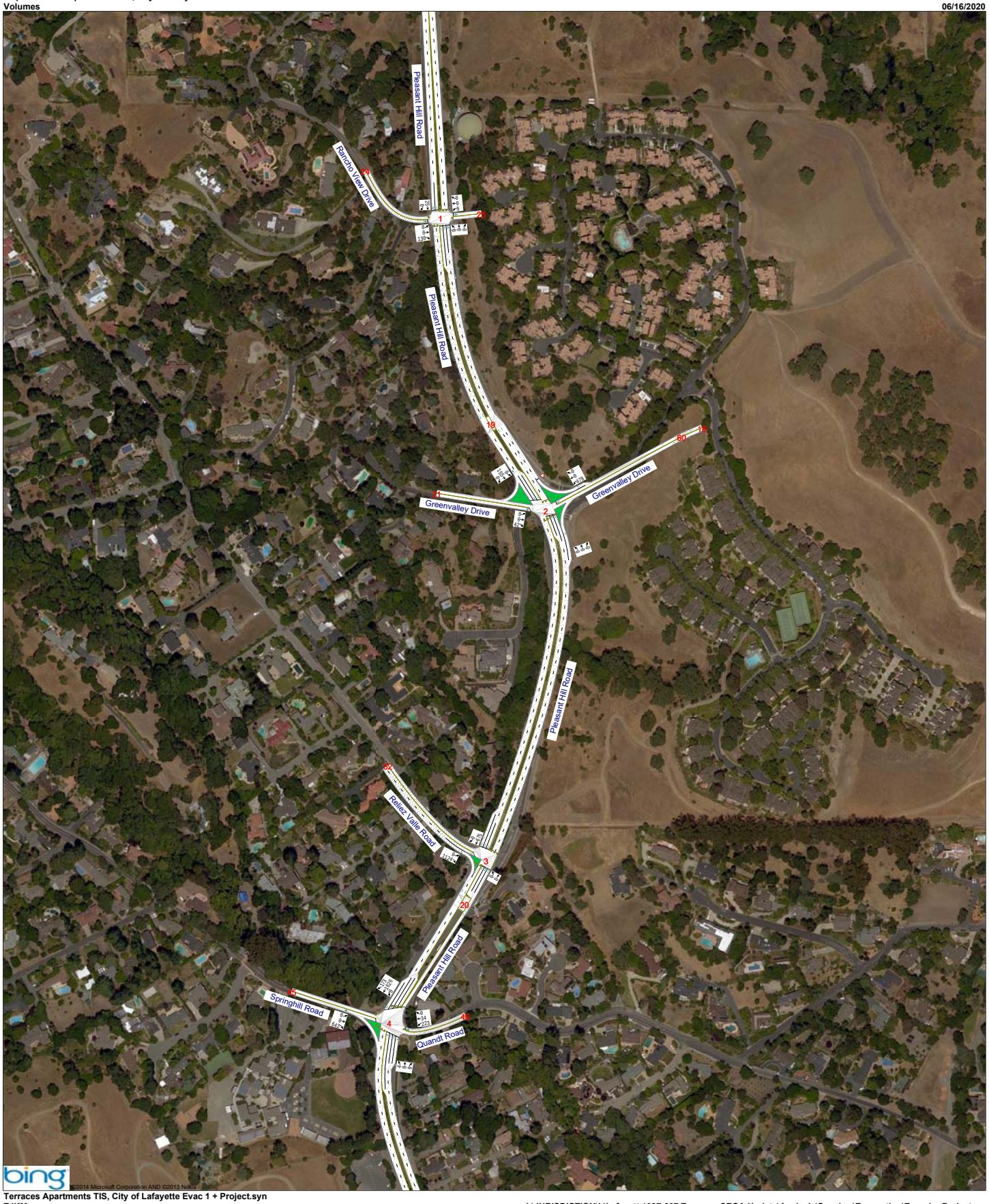
As mentioned above, it must be stressed that the evacuation scenario developed for this analysis makes multiple highly conservative assumptions and simplifications, which result in higher traffic volumes and worse traffic progression than is likely to occur during an actual emergency. Even with all 1,803 existing homes and both schools being evacuated at the same time, the addition of traffic from the 315 new homes would produce minimal, if any, impacts on emergency operations. It is likely that other variables, such as alternative evacuation routes, staggering evacuation orders, and emergency personnel actively managing traffic, would have substantially greater effects.

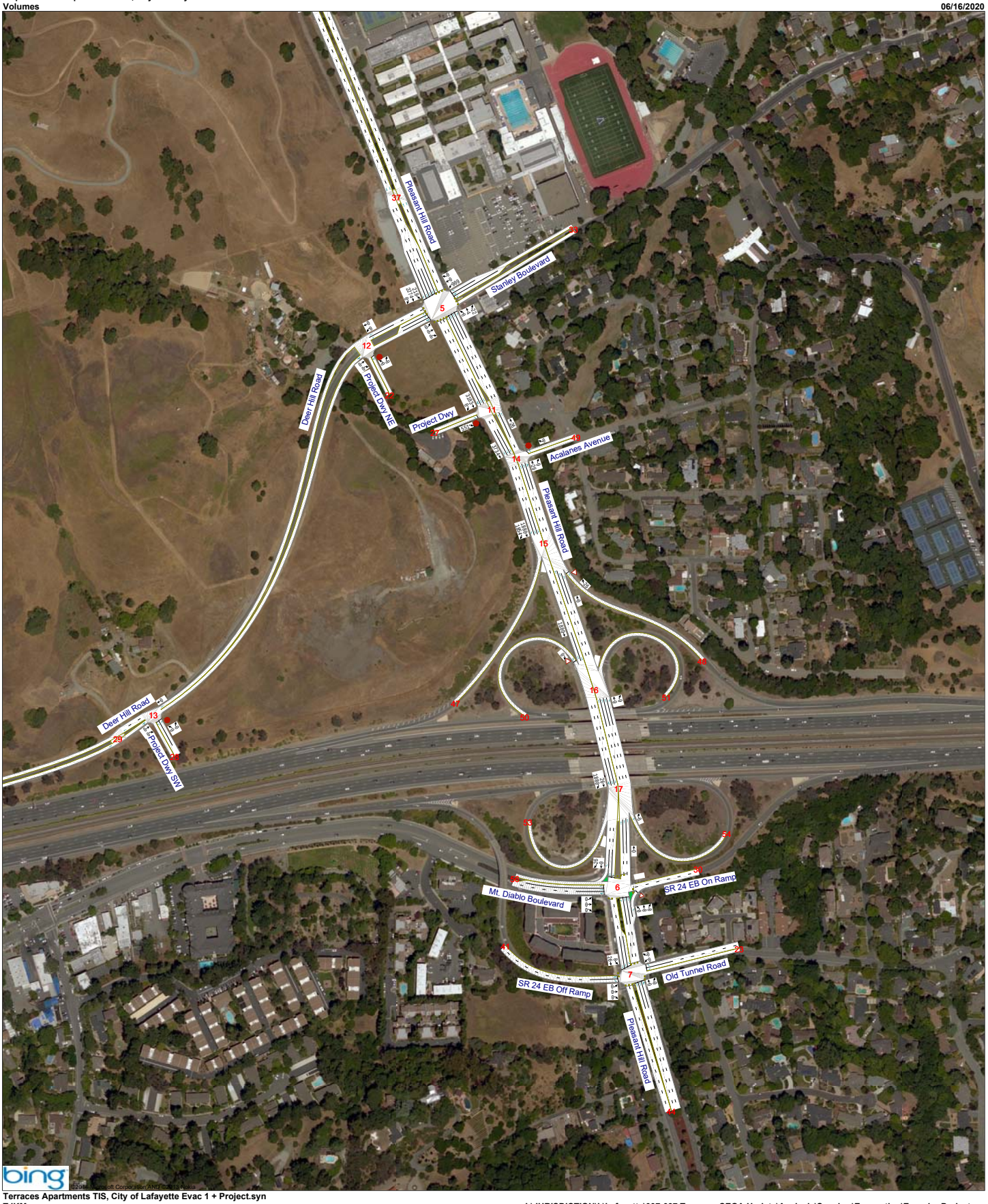
APPENDIX

- Synchro network volumes
- Intersection LOS calculation sheets
- Simulation Reports


Pleasant Hill Road
Rancho View Drive
Pleasant Hill Road
Greenvalley Drive
Greenvalley Drive
Pleasant Hill Road
Reliez Valle Road
Pleasant Hill Road
Springhill Road
Quandt Road


Pleasant Hill Road
Stanley Boulevard
Deer Hill Road
Acalanes Avenue
Pleasant Hill Road
Deer Hill Road
Mt. Diablo Boulevard
SR 24 EB On Ramp
Old Tunnel Road
SR 24 EB Off Ramp
5
6
7
11
12
13
14
15
16
17
23
30
33
41
47
48
49
50
51
53
54
56
3183
1605
1578
26
©2014 Microsoft Corporation AND ©2013 Nokia


Pleasant Hill Road
Rancho View Drive
24
1
25
Pleasant Hill Road
19
60
12
Greenvalley Drive
Greenvalley Drive
11
2
Pleasant Hill Road
22
Reliez Valle Road
3
20
Pleasant Hill Road
Springhill Road
5
4
18
Quandt Road
bing
©2014 Microsoft Corporation AND ©2013 Nokia


Pleasant Hill Road
Stanley Boulevard
Deer Hill Road
Project Dwy NE
Project Dwy
Acalanes Avenue
Pleasant Hill Road
Deer Hill Road
Project Dwy SW
Mt. Diablo Boulevard
SR 24 EB On Ramp
SR 24 EB Off Ramp
Old Tunnel Road
Pleasant Hill Road
bing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	130	0	0	0	0	0	0	0	25	0
Future Volume (veh/h)	0	0	130	0	0	0	0	0	0	0	25	0
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	1900	1845	1900	1900	1845	1900	1845	1845	1900	0	1845	1900
Adj Flow Rate, veh/h	0	0	173	0	0	0	0	0	0	0	33	0
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	0	3	3
Cap, veh/h	0	0	468	0	551	0	2	1991	0	0	1991	0
Arrive On Green	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.00
Sat Flow, veh/h	0	0	1568	0	1845	0	1757	3597	0	0	3689	0
Grp Volume(v), veh/h	0	0	173	0	0	0	0	0	0	0	33	0
Grp Sat Flow(s),veh/h/ln	0	0	1568	0	1845	0	1757	1752	0	0	1752	0
Q Serve(g_s), s	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Cycle Q Clear(g_c), s	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Prop In Lane	0.00		1.00	0.00		0.00	1.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	0	468	0	551	0	2	1991	0	0	1991	0
V/C Ratio(X)	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Avail Cap(c_a), veh/h	0	0	468	0	551	0	187	1991	0	0	1991	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)	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	20.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
LnGrp Delay(d),s/veh	0.0	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	0.0
LnGrp LOS			C								A	
Approach Vol, veh/h		173			0			0			33	
Approach Delay, s/veh		23.0			0.0			0.0			7.1	
Approach LOS		C									A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		48.0		27.0	0.0	48.0		27.0
Change Period (Y+Rc), s		5.4		4.6	4.0	* 5.4		4.6
Max Green Setting (Gmax), s		42.6		22.4	8.0	* 31		22.4
Max Q Clear Time (g_c+I1), s		0.0		8.5	0.0	2.3		0.0
Green Ext Time (p_c), s		0.0		1.1	0.0	0.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	42	478	0	0	0	0	0	0	155	0
Future Volume (veh/h)	0	0	42	478	0	0	0	0	0	0	155	0
Number	7	4	14	3	8	18	1	6	16	5	2	12
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	1845	1900	1900	1845	1845	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	0	0	56	637	0	0	0	0	0	0	207	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	0	364	367	0	364	2	2224	995	2	2224	0
Arrive On Green	0.00	0.00	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00
Sat Flow, veh/h	0	0	1568	1166	0	1568	1757	3505	1568	1757	3597	0
Grp Volume(v), veh/h	0	0	56	637	0	0	0	0	0	0	207	0
Grp Sat Flow(s),veh/h/ln	0	0	1568	1166	0	1568	1757	1752	1568	1757	1752	0
Q Serve(g_s), s	0.0	0.0	2.1	15.3	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0
Cycle Q Clear(g_c), s	0.0	0.0	2.1	17.4	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	364	367	0	364	2	2224	995	2	2224	0
V/C Ratio(X)	0.00	0.00	0.15	1.74	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00
Avail Cap(c_a), veh/h	0	0	364	367	0	364	211	2224	995	187	2224	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)	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	22.9	31.9	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.9	343.2	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.0	42.5	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
LnGrp Delay(d),s/veh	0.0	0.0	23.8	375.1	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.0
LnGrp LOS			C	F							A	
Approach Vol, veh/h		56			637			0			207	
Approach Delay, s/veh		23.8			375.1			0.0			5.4	
Approach LOS		C			F						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	53.0		22.0	0.0	53.0		22.0
Change Period (Y+Rc), s	4.0	* 5.4		4.6	4.0	5.4		4.6
Max Green Setting (Gmax), s	9.0	* 35		17.4	8.0	35.6		17.4
Max Q Clear Time (g_c+I1), s	0.0	3.7		4.1	0.0	0.0		19.4
Green Ext Time (p_c), s	0.0	1.8		0.1	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	268.2
HCM 2010 LOS	F

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1124	0	0	675	0
Future Volume (veh/h)	0	1124	0	0	675	0
Number	3	18	1	6	2	12
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	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	0	0	0	0	900	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1	1	1	3379	3379	1512
Arrive On Green	0.00	0.00	0.00	0.00	1.00	0.00
Sat Flow, veh/h	1757	1568	1757	3597	3597	1568
Grp Volume(v), veh/h	0	0	0	0	900	0
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1752	1752	1568
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	1	1	1	3379	3379	1512
V/C Ratio(X)	0.00	0.00	0.00	0.00	0.27	0.00
Avail Cap(c_a), veh/h	507	453	141	3379	3379	1512
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.2	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	0.0	0.0	0.0	0.0	0.1	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	0.0	0.2	0.0
LnGrp LOS					A	
Approach Vol, veh/h	0			0	900	
Approach Delay, s/veh	0.0			0.0	0.2	
Approach LOS					A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	0.0	150.0				150.0		0.0
Change Period (Y+Rc), s	4.0	* 5.4				5.4		4.7
Max Green Setting (Gmax), s	12.0	* 81				96.6		43.3
Max Q Clear Time (g_c+I1), s	0.0	2.0				0.0		0.0
Green Ext Time (p_c), s	0.0	11.9				0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	0.2
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	643	223	34	0	4	0	0	0	1626	173
Future Volume (veh/h)	0	0	643	223	34	0	4	0	0	0	1626	173
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	0.98		1.00	1.00		1.00	1.00		0.98
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	1845	1900	1900	1845	1900	1845	1845	1845	1505	1505	1505
Adj Flow Rate, veh/h	0	0	0	297	45	0	5	0	0	0	2168	231
Adj No. of Lanes	0	1	0	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	343	0	273	35	0	18	2638	1180	1	2044	892
Arrive On Green	0.00	0.00	0.00	0.19	0.19	0.00	0.01	0.00	0.00	0.00	0.71	0.71
Sat Flow, veh/h	0	1845	0	1228	186	0	1616	3505	1568	1433	2859	1248
Grp Volume(v), veh/h	0	0	0	342	0	0	5	0	0	0	2168	231
Grp Sat Flow(s),veh/h/ln	0	1845	0	1414	0	0	1616	1752	1568	1433	1430	1248
Q Serve(g_s), s	0.0	0.0	0.0	27.9	0.0	0.0	0.5	0.0	0.0	0.0	107.2	9.7
Cycle Q Clear(g_c), s	0.0	0.0	0.0	27.9	0.0	0.0	0.5	0.0	0.0	0.0	107.2	9.7
Prop In Lane	0.00		0.00	0.87		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	343	0	308	0	0	18	2638	1180	1	2044	892
V/C Ratio(X)	0.00	0.00	0.00	1.11	0.00	0.00	0.27	0.00	0.00	0.00	1.06	0.26
Avail Cap(c_a), veh/h	0	343	0	308	0	0	140	2638	1180	124	2044	892
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	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	63.1	0.0	0.0	73.5	0.0	0.0	0.0	21.4	7.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	84.6	0.0	0.0	3.0	0.0	0.0	0.0	38.4	0.7
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	0.0	0.0	0.0	20.0	0.0	0.0	0.2	0.0	0.0	0.0	52.6	3.5
LnGrp Delay(d),s/veh	0.0	0.0	0.0	147.7	0.0	0.0	76.5	0.0	0.0	0.0	59.8	8.2
LnGrp LOS				F			E				F	A
Approach Vol, veh/h		0			342			5			2399	
Approach Delay, s/veh		0.0			147.7			76.5			54.8	
Approach LOS					F			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	5.7	112.3		32.0	0.0	118.0		32.0
Change Period (Y+Rc), s	4.0	5.1		4.1	4.0	5.1		4.1
Max Green Setting (Gmax), s	13.0	95.9		27.9	13.0	95.9		27.9
Max Q Clear Time (g_c+I1), s	2.5	109.2		29.9	0.0	0.0		0.0
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		66.4
HCM 2010 LOS		E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	909	0	0	0	4	22	218	2274	0
Future Volume (veh/h)	0	0	0	909	0	0	0	4	22	218	2274	0
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	0.86		1.00	1.00		0.96	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	1845	1845	1900	1845	1845	1845	1845	1845	1845	1456	1456	1456
Adj Flow Rate, veh/h	0	0	0	1212	0	0	0	5	29	291	3032	0
Adj No. of Lanes	2	1	0	2	0	1	1	2	1	1	2	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	1	0	463	0	240	1	2194	942	185	2175	973
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.63	0.63	0.18	1.00	0.00
Sat Flow, veh/h	3408	1845	0	3021	0	1568	1757	3505	1505	1387	2767	1238
Grp Volume(v), veh/h	0	0	0	1212	0	0	0	5	29	291	3032	0
Grp Sat Flow(s),veh/h/ln	1704	1845	0	1510	0	1568	1757	1752	1505	1387	1383	1238
Q Serve(g_s), s	0.0	0.0	0.0	23.0	0.0	0.0	0.0	0.1	1.1	20.0	117.9	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	23.0	0.0	0.0	0.0	0.1	1.1	20.0	117.9	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	2	1	0	463	0	240	1	2194	942	185	2175	973
V/C Ratio(X)	0.00	0.00	0.00	2.62	0.00	0.00	0.00	0.00	0.03	1.57	1.39	0.00
Avail Cap(c_a), veh/h	611	331	0	463	0	240	199	2194	942	185	2175	973
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	63.5	0.0	0.0	0.0	10.5	10.7	61.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	733.7	0.0	0.0	0.0	0.0	0.1	260.5	177.6	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	0.0	0.0	0.0	56.8	0.0	0.0	0.0	0.0	0.5	21.0	53.7	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	797.2	0.0	0.0	0.0	10.5	10.8	322.2	177.6	0.0
LnGrp LOS				F				B	B	F	F	
Approach Vol, veh/h		0			1212			34			3323	
Approach Delay, s/veh		0.0			797.2			10.7			190.3	
Approach LOS					F			B			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	123.0		27.0	24.0	99.0		0.0
Change Period (Y+Rc), s	4.0	5.1		4.0	4.0	5.1		5.1
Max Green Setting (Gmax), s	17.0	64.9		23.0	20.0	61.9		26.9
Max Q Clear Time (g_c+I1), s	0.0	119.9		25.0	22.0	3.1		0.0
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.2		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		349.9
HCM 2010 LOS		F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	130	0	0	0	0	0	0	0	25	0
Future Volume (veh/h)	0	0	130	0	0	0	0	0	0	0	25	0
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	1900	1845	1900	1900	1845	1900	1845	1845	1900	0	1845	1900
Adj Flow Rate, veh/h	0	0	173	0	0	0	0	0	0	0	33	0
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	0	3	3
Cap, veh/h	0	0	683	0	803	0	3	1413	0	0	1413	0
Arrive On Green	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00
Sat Flow, veh/h	0	0	1568	0	1845	0	1757	3597	0	0	3689	0
Grp Volume(v), veh/h	0	0	173	0	0	0	0	0	0	0	33	0
Grp Sat Flow(s),veh/h/ln	0	0	1568	0	1845	0	1757	1752	0	0	1752	0
Q Serve(g_s), s	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Cycle Q Clear(g_c), s	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Prop In Lane	0.00		1.00	0.00		0.00	1.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	0	683	0	803	0	3	1413	0	0	1413	0
V/C Ratio(X)	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Avail Cap(c_a), veh/h	0	0	683	0	803	0	198	1413	0	0	1413	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)	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
LnGrp Delay(d),s/veh	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2	0.0
LnGrp LOS			B								B	
Approach Vol, veh/h		173			0			0			33	
Approach Delay, s/veh		12.0			0.0			0.0			11.2	
Approach LOS		B									B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		30.4		31.6	0.0	30.4		31.6
Change Period (Y+Rc), s		5.4		4.6	4.0	* 5.4		4.6
Max Green Setting (Gmax), s		25.0		27.0	7.0	* 14		27.0
Max Q Clear Time (g_c+I1), s		0.0		6.3	0.0	2.4		0.0
Green Ext Time (p_c), s		0.0		1.4	0.0	0.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.9
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	42	478	0	0	0	0	0	0	155	0
Future Volume (veh/h)	0	0	42	478	0	0	0	0	0	0	155	0
Number	7	4	14	3	8	18	1	6	16	5	2	12
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	1845	1900	1900	1845	1845	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	0	0	56	637	0	0	0	0	0	0	207	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	0	556	556	0	556	3	1696	759	3	1696	0
Arrive On Green	0.00	0.00	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00
Sat Flow, veh/h	0	0	1568	1240	0	1568	1757	3505	1568	1757	3597	0
Grp Volume(v), veh/h	0	0	56	637	0	0	0	0	0	0	207	0
Grp Sat Flow(s),veh/h/ln	0	0	1568	1240	0	1568	1757	1752	1568	1757	1752	0
Q Serve(g_s), s	0.0	0.0	1.5	20.5	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	1.5	22.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	556	556	0	556	3	1696	759	3	1696	0
V/C Ratio(X)	0.00	0.00	0.10	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00
Avail Cap(c_a), veh/h	0	0	556	556	0	556	255	1696	759	227	1696	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)	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	13.4	22.9	0.0	0.0	0.0	0.0	0.0	0.0	8.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.4	85.2	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.7	22.6	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	13.7	108.1	0.0	0.0	0.0	0.0	0.0	0.0	8.9	0.0
LnGrp LOS			B	F							A	
Approach Vol, veh/h		56			637			0			207	
Approach Delay, s/veh		13.7			108.1			0.0			8.9	
Approach LOS		B			F						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	35.4		26.6	0.0	35.4		26.6
Change Period (Y+Rc), s	4.0	* 5.4		4.6	4.0	5.4		4.6
Max Green Setting (Gmax), s	9.0	* 17		22.0	8.0	18.0		22.0
Max Q Clear Time (g_c+I1), s	0.0	4.0		3.5	0.0	0.0		24.0
Green Ext Time (p_c), s	0.0	1.3		0.1	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	79.4
HCM 2010 LOS	E

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1124	0	0	675	0
Future Volume (veh/h)	0	1124	0	0	675	0
Number	3	18	1	6	2	12
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	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	0	0	0	0	900	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	2	2	2	3316	3316	1483
Arrive On Green	0.00	0.00	0.00	0.00	0.95	0.00
Sat Flow, veh/h	1757	1568	1757	3597	3597	1568
Grp Volume(v), veh/h	0	0	0	0	900	0
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1752	1752	1568
Q Serve(g_s), s	0.0	0.0	0.0	0.0	1.9	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	1.9	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	2	2	2	3316	3316	1483
V/C Ratio(X)	0.00	0.00	0.00	0.00	0.27	0.00
Avail Cap(c_a), veh/h	480	428	264	3316	3316	1483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.2	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	0.0	0.0	0.0	0.0	1.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	0.0	0.4	0.0
LnGrp LOS					A	
Approach Vol, veh/h	0			0	900	
Approach Delay, s/veh	0.0			0.0	0.4	
Approach LOS					A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	0.0	100.0				100.0		0.0
Change Period (Y+Rc), s	4.0	* 5.4				5.4		4.7
Max Green Setting (Gmax), s	15.0	* 44				62.6		27.3
Max Q Clear Time (g_c+I1), s	0.0	3.9				0.0		0.0
Green Ext Time (p_c), s	0.0	10.9				0.0		0.0

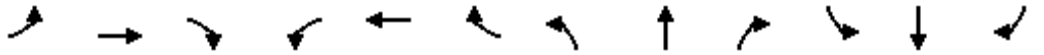
Intersection Summary	
HCM 2010 Ctrl Delay	0.4
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	643	223	34	0	4	0	0	0	1626	173
Future Volume (veh/h)	0	0	643	223	34	0	4	0	0	0	1626	173
Number	3	8	18	7	4	14	1	6	16	5	2	12
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		0.98
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	1845	1845	1900	1845	1900	1845	1845	1845	1505	1505	1505
Adj Flow Rate, veh/h	0	0	0	297	45	0	5	0	0	0	2168	231
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	500	425	447	51	0	19	2035	910	2	1442	631
Arrive On Green	0.00	0.00	0.00	0.27	0.27	0.00	0.01	0.00	0.00	0.00	0.50	0.50
Sat Flow, veh/h	0	1845	1568	1248	189	0	1616	3505	1568	1433	2859	1251
Grp Volume(v), veh/h	0	0	0	342	0	0	5	0	0	0	2168	231
Grp Sat Flow(s),veh/h/ln	0	1845	1568	1437	0	0	1616	1752	1568	1433	1430	1251
Q Serve(g_s), s	0.0	0.0	0.0	14.1	0.0	0.0	0.2	0.0	0.0	0.0	31.3	7.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	14.1	0.0	0.0	0.2	0.0	0.0	0.0	31.3	7.0
Prop In Lane	0.00		1.00	0.87		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	500	425	498	0	0	19	2035	910	2	1442	631
V/C Ratio(X)	0.00	0.00	0.00	0.69	0.00	0.00	0.26	0.00	0.00	0.00	1.50	0.37
Avail Cap(c_a), veh/h	0	655	556	618	0	0	235	2035	910	185	1442	631
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	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	21.6	0.0	0.0	30.4	0.0	0.0	0.0	15.4	9.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.4	0.0	0.0	2.6	0.0	0.0	0.0	230.5	1.6
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	0.0	0.0	0.0	5.8	0.0	0.0	0.1	0.0	0.0	0.0	58.4	2.7
LnGrp Delay(d),s/veh	0.0	0.0	0.0	23.0	0.0	0.0	32.9	0.0	0.0	0.0	245.8	11.0
LnGrp LOS				C			C				F	B
Approach Vol, veh/h		0			342			5			2399	
Approach Delay, s/veh		0.0			23.0			32.9			223.2	
Approach LOS					C			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.7	36.4		20.9	0.0	41.1		20.9
Change Period (Y+Rc), s	4.0	5.1		4.1	4.0	5.1		4.1
Max Green Setting (Gmax), s	9.0	17.8		22.0	8.0	18.8		22.0
Max Q Clear Time (g_c+I1), s	2.2	33.3		16.1	0.0	0.0		0.0
Green Ext Time (p_c), s	0.0	0.0		0.7	0.0	0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		197.9
HCM 2010 LOS		F



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	909	0	0	0	4	22	218	2274	0
Future Volume (veh/h)	0	0	0	909	0	0	0	4	22	218	2274	0
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	0.97		1.00	1.00		0.98	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	1845	1845	1900	1845	1845	1845	1845	1845	1845	1456	1456	1456
Adj Flow Rate, veh/h	0	0	0	1212	0	0	0	5	29	291	3032	0
Adj No. of Lanes	2	1	0	2	0	1	1	2	1	1	2	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	3	1	0	328	0	151	1	2516	1100	123	2314	1035
Arrive On Green	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.72	0.72	0.09	0.84	0.00
Sat Flow, veh/h	3408	1845	0	3404	0	1568	1757	3505	1533	1387	2767	1238
Grp Volume(v), veh/h	0	0	0	1212	0	0	0	5	29	291	3032	0
Grp Sat Flow(s),veh/h/ln	1704	1845	0	1702	0	1568	1757	1752	1533	1387	1383	1238
Q Serve(g_s), s	0.0	0.0	0.0	13.0	0.0	0.0	0.0	0.1	0.7	12.0	112.9	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	13.0	0.0	0.0	0.0	0.1	0.7	12.0	112.9	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	3	1	0	328	0	151	1	2516	1100	123	2314	1035
V/C Ratio(X)	0.00	0.00	0.00	3.70	0.00	0.00	0.00	0.00	0.03	2.36	1.31	0.00
Avail Cap(c_a), veh/h	957	518	0	328	0	151	91	2516	1100	123	2314	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)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	61.0	0.0	0.0	0.0	5.4	5.5	61.5	11.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1221.3	0.0	0.0	0.0	0.0	0.0	614.4	139.9	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	0.0	0.0	0.0	61.7	0.0	0.0	0.0	0.0	0.3	25.6	86.4	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	1282.3	0.0	0.0	0.0	5.4	5.5	675.9	151.0	0.0
LnGrp LOS				F				A	A	F	F	
Approach Vol, veh/h		0			1212			34			3323	
Approach Delay, s/veh		0.0			1282.3			5.5			196.9	
Approach LOS					F			A			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	118.0		17.0	16.0	102.0		0.0
Change Period (Y+Rc), s	4.0	5.1		4.0	4.0	5.1		5.1
Max Green Setting (Gmax), s	7.0	58.9		13.0	12.0	53.9		37.9
Max Q Clear Time (g_c+I1), s	0.0	114.9		15.0	14.0	2.7		0.0
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.2		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		483.4
HCM 2010 LOS		F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	130	0	0	0	0	0	0	0	25	0
Future Volume (veh/h)	0	0	130	0	0	0	0	0	0	0	25	0
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	1900	1845	1900	1900	1845	1900	1845	1845	1900	0	1845	1900
Adj Flow Rate, veh/h	0	0	173	0	0	0	0	0	0	0	33	0
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	0	3	3
Cap, veh/h	0	0	468	0	551	0	2	1991	0	0	1991	0
Arrive On Green	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.00
Sat Flow, veh/h	0	0	1568	0	1845	0	1757	3597	0	0	3689	0
Grp Volume(v), veh/h	0	0	173	0	0	0	0	0	0	0	33	0
Grp Sat Flow(s),veh/h/ln	0	0	1568	0	1845	0	1757	1752	0	0	1752	0
Q Serve(g_s), s	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Cycle Q Clear(g_c), s	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Prop In Lane	0.00		1.00	0.00		0.00	1.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	0	468	0	551	0	2	1991	0	0	1991	0
V/C Ratio(X)	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Avail Cap(c_a), veh/h	0	0	468	0	551	0	187	1991	0	0	1991	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)	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	20.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
LnGrp Delay(d),s/veh	0.0	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	0.0
LnGrp LOS			C								A	
Approach Vol, veh/h		173			0			0			33	
Approach Delay, s/veh		23.0			0.0			0.0			7.1	
Approach LOS		C									A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		48.0		27.0	0.0	48.0		27.0
Change Period (Y+Rc), s		5.4		4.6	4.0	* 5.4		4.6
Max Green Setting (Gmax), s		42.6		22.4	8.0	* 31		22.4
Max Q Clear Time (g_c+I1), s		0.0		8.5	0.0	2.3		0.0
Green Ext Time (p_c), s		0.0		1.1	0.0	0.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	42	478	0	0	0	0	0	0	155	0
Future Volume (veh/h)	0	0	42	478	0	0	0	0	0	0	155	0
Number	7	4	14	3	8	18	1	6	16	5	2	12
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	1845	1900	1900	1845	1845	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	0	0	56	637	0	0	0	0	0	0	207	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	0	364	367	0	364	2	2224	995	2	2224	0
Arrive On Green	0.00	0.00	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00
Sat Flow, veh/h	0	0	1568	1166	0	1568	1757	3505	1568	1757	3597	0
Grp Volume(v), veh/h	0	0	56	637	0	0	0	0	0	0	207	0
Grp Sat Flow(s),veh/h/ln	0	0	1568	1166	0	1568	1757	1752	1568	1757	1752	0
Q Serve(g_s), s	0.0	0.0	2.1	15.3	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0
Cycle Q Clear(g_c), s	0.0	0.0	2.1	17.4	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	364	367	0	364	2	2224	995	2	2224	0
V/C Ratio(X)	0.00	0.00	0.15	1.74	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00
Avail Cap(c_a), veh/h	0	0	364	367	0	364	211	2224	995	187	2224	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)	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	22.9	31.9	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.9	343.2	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	1.0	42.5	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
LnGrp Delay(d),s/veh	0.0	0.0	23.8	375.1	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.0
LnGrp LOS			C	F							A	
Approach Vol, veh/h		56			637			0			207	
Approach Delay, s/veh		23.8			375.1			0.0			5.4	
Approach LOS		C			F						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	53.0		22.0	0.0	53.0		22.0
Change Period (Y+Rc), s	4.0	* 5.4		4.6	4.0	5.4		4.6
Max Green Setting (Gmax), s	9.0	* 35		17.4	8.0	35.6		17.4
Max Q Clear Time (g_c+I1), s	0.0	3.7		4.1	0.0	0.0		19.4
Green Ext Time (p_c), s	0.0	1.8		0.1	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	268.2
HCM 2010 LOS	F

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1124	0	0	675	0
Future Volume (veh/h)	0	1124	0	0	675	0
Number	3	18	1	6	2	12
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	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	0	0	0	0	900	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1	1	1	3379	3379	1512
Arrive On Green	0.00	0.00	0.00	0.00	1.00	0.00
Sat Flow, veh/h	1757	1568	1757	3597	3597	1568
Grp Volume(v), veh/h	0	0	0	0	900	0
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1752	1752	1568
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	1	1	1	3379	3379	1512
V/C Ratio(X)	0.00	0.00	0.00	0.00	0.27	0.00
Avail Cap(c_a), veh/h	507	453	141	3379	3379	1512
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.2	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	0.0	0.0	0.0	0.0	0.1	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	0.0	0.2	0.0
LnGrp LOS					A	
Approach Vol, veh/h	0			0	900	
Approach Delay, s/veh	0.0			0.0	0.2	
Approach LOS					A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	0.0	150.0				150.0		0.0
Change Period (Y+Rc), s	4.0	* 5.4				5.4		4.7
Max Green Setting (Gmax), s	12.0	* 81				96.6		43.3
Max Q Clear Time (g_c+I1), s	0.0	2.0				0.0		0.0
Green Ext Time (p_c), s	0.0	11.9				0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	0.2
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	643	223	34	0	4	0	0	0	1626	173
Future Volume (veh/h)	0	0	643	223	34	0	4	0	0	0	1626	173
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	0.98		1.00	1.00		1.00	1.00		0.98
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	1845	1900	1900	1845	1900	1845	1845	1845	1505	1505	1505
Adj Flow Rate, veh/h	0	0	0	297	45	0	5	0	0	0	2168	231
Adj No. of Lanes	0	1	0	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	343	0	273	35	0	18	2638	1180	1	2044	892
Arrive On Green	0.00	0.00	0.00	0.19	0.19	0.00	0.01	0.00	0.00	0.00	0.71	0.71
Sat Flow, veh/h	0	1845	0	1228	186	0	1616	3505	1568	1433	2859	1248
Grp Volume(v), veh/h	0	0	0	342	0	0	5	0	0	0	2168	231
Grp Sat Flow(s),veh/h/ln	0	1845	0	1414	0	0	1616	1752	1568	1433	1430	1248
Q Serve(g_s), s	0.0	0.0	0.0	27.9	0.0	0.0	0.5	0.0	0.0	0.0	107.2	9.7
Cycle Q Clear(g_c), s	0.0	0.0	0.0	27.9	0.0	0.0	0.5	0.0	0.0	0.0	107.2	9.7
Prop In Lane	0.00		0.00	0.87		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	343	0	308	0	0	18	2638	1180	1	2044	892
V/C Ratio(X)	0.00	0.00	0.00	1.11	0.00	0.00	0.27	0.00	0.00	0.00	1.06	0.26
Avail Cap(c_a), veh/h	0	343	0	308	0	0	140	2638	1180	124	2044	892
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	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	63.1	0.0	0.0	73.5	0.0	0.0	0.0	21.4	7.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	84.6	0.0	0.0	3.0	0.0	0.0	0.0	38.4	0.7
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	0.0	0.0	0.0	20.0	0.0	0.0	0.2	0.0	0.0	0.0	52.6	3.5
LnGrp Delay(d),s/veh	0.0	0.0	0.0	147.7	0.0	0.0	76.5	0.0	0.0	0.0	59.8	8.2
LnGrp LOS				F			E				F	A
Approach Vol, veh/h		0			342			5			2399	
Approach Delay, s/veh		0.0			147.7			76.5			54.8	
Approach LOS					F			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	5.7	112.3		32.0	0.0	118.0		32.0
Change Period (Y+Rc), s	4.0	5.1		4.1	4.0	5.1		4.1
Max Green Setting (Gmax), s	13.0	95.9		27.9	13.0	95.9		27.9
Max Q Clear Time (g_c+I1), s	2.5	109.2		29.9	0.0	0.0		0.0
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	66.4
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	909	0	0	0	4	22	218	2274	0
Future Volume (veh/h)	0	0	0	909	0	0	0	4	22	218	2274	0
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	0.92		1.00	1.00		0.96	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	1845	1845	1900	1845	1845	1845	1845	1845	1845	1456	1456	1456
Adj Flow Rate, veh/h	0	0	0	1212	0	0	0	5	29	291	3032	0
Adj No. of Lanes	2	1	0	2	0	1	1	2	1	1	3	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	1	0	493	0	240	1	2194	942	185	3125	973
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.63	0.63	0.13	0.79	0.00
Sat Flow, veh/h	3408	1845	0	3218	0	1568	1757	3505	1505	1387	3976	1238
Grp Volume(v), veh/h	0	0	0	1212	0	0	0	5	29	291	3032	0
Grp Sat Flow(s),veh/h/ln	1704	1845	0	1609	0	1568	1757	1752	1505	1387	1325	1238
Q Serve(g_s), s	0.0	0.0	0.0	23.0	0.0	0.0	0.0	0.1	1.1	20.0	103.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	23.0	0.0	0.0	0.0	0.1	1.1	20.0	103.1	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	2	1	0	493	0	240	1	2194	942	185	3125	973
V/C Ratio(X)	0.00	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.03	1.57	0.97	0.00
Avail Cap(c_a), veh/h	611	331	0	493	0	240	199	2194	942	185	3125	973
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	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	63.5	0.0	0.0	0.0	10.5	10.7	65.0	14.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	661.4	0.0	0.0	0.0	0.0	0.1	282.5	10.5	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	0.0	0.0	0.0	55.5	0.0	0.0	0.0	0.0	0.5	22.2	40.1	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	724.9	0.0	0.0	0.0	10.5	10.8	347.5	25.0	0.0
LnGrp LOS				F				B	B	F	C	
Approach Vol, veh/h		0			1212			34			3323	
Approach Delay, s/veh		0.0			724.9			10.7			53.2	
Approach LOS					F			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	123.0		27.0	24.0	99.0		0.0
Change Period (Y+Rc), s	4.0	5.1		4.0	4.0	5.1		5.1
Max Green Setting (Gmax), s	17.0	64.9		23.0	20.0	61.9		26.9
Max Q Clear Time (g_c+I1), s	0.0	105.1		25.0	22.0	3.1		0.0
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.2		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		231.1
HCM 2010 LOS		F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	130	0	0	0	0	0	0	0	25	0
Future Volume (veh/h)	0	0	130	0	0	0	0	0	0	0	25	0
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	1900	1845	1900	1900	1845	1900	1845	1845	1900	0	1845	1900
Adj Flow Rate, veh/h	0	0	173	0	0	0	0	0	0	0	33	0
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	0	3	3
Cap, veh/h	0	0	683	0	803	0	3	1413	0	0	1413	0
Arrive On Green	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00
Sat Flow, veh/h	0	0	1568	0	1845	0	1757	3597	0	0	3689	0
Grp Volume(v), veh/h	0	0	173	0	0	0	0	0	0	0	33	0
Grp Sat Flow(s),veh/h/ln	0	0	1568	0	1845	0	1757	1752	0	0	1752	0
Q Serve(g_s), s	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Cycle Q Clear(g_c), s	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Prop In Lane	0.00		1.00	0.00		0.00	1.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	0	683	0	803	0	3	1413	0	0	1413	0
V/C Ratio(X)	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Avail Cap(c_a), veh/h	0	0	683	0	803	0	198	1413	0	0	1413	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)	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
LnGrp Delay(d),s/veh	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2	0.0
LnGrp LOS			B								B	
Approach Vol, veh/h		173			0			0			33	
Approach Delay, s/veh		12.0			0.0			0.0			11.2	
Approach LOS		B									B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		30.4		31.6	0.0	30.4		31.6
Change Period (Y+Rc), s		5.4		4.6	4.0	* 5.4		4.6
Max Green Setting (Gmax), s		25.0		27.0	7.0	* 14		27.0
Max Q Clear Time (g_c+I1), s		0.0		6.3	0.0	2.4		0.0
Green Ext Time (p_c), s		0.0		1.4	0.0	0.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.9
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	42	478	0	0	0	0	0	0	155	0
Future Volume (veh/h)	0	0	42	478	0	0	0	0	0	0	155	0
Number	7	4	14	3	8	18	1	6	16	5	2	12
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	1845	1900	1900	1845	1845	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	0	0	56	637	0	0	0	0	0	0	207	0
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	0	556	556	0	556	3	1696	759	3	1696	0
Arrive On Green	0.00	0.00	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00
Sat Flow, veh/h	0	0	1568	1240	0	1568	1757	3505	1568	1757	3597	0
Grp Volume(v), veh/h	0	0	56	637	0	0	0	0	0	0	207	0
Grp Sat Flow(s),veh/h/ln	0	0	1568	1240	0	1568	1757	1752	1568	1757	1752	0
Q Serve(g_s), s	0.0	0.0	1.5	20.5	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	1.5	22.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	556	556	0	556	3	1696	759	3	1696	0
V/C Ratio(X)	0.00	0.00	0.10	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00
Avail Cap(c_a), veh/h	0	0	556	556	0	556	255	1696	759	227	1696	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)	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	13.4	22.9	0.0	0.0	0.0	0.0	0.0	0.0	8.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.4	85.2	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.7	22.6	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	13.7	108.1	0.0	0.0	0.0	0.0	0.0	0.0	8.9	0.0
LnGrp LOS			B	F							A	
Approach Vol, veh/h		56			637			0			207	
Approach Delay, s/veh		13.7			108.1			0.0			8.9	
Approach LOS		B			F						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	35.4		26.6	0.0	35.4		26.6
Change Period (Y+Rc), s	4.0	* 5.4		4.6	4.0	5.4		4.6
Max Green Setting (Gmax), s	9.0	* 17		22.0	8.0	18.0		22.0
Max Q Clear Time (g_c+I1), s	0.0	4.0		3.5	0.0	0.0		24.0
Green Ext Time (p_c), s	0.0	1.3		0.1	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	79.4
HCM 2010 LOS	E

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1124	0	0	675	0
Future Volume (veh/h)	0	1124	0	0	675	0
Number	3	18	1	6	2	12
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	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	0	0	0	0	900	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	2	2	2	3316	3316	1483
Arrive On Green	0.00	0.00	0.00	0.00	0.95	0.00
Sat Flow, veh/h	1757	1568	1757	3597	3597	1568
Grp Volume(v), veh/h	0	0	0	0	900	0
Grp Sat Flow(s),veh/h/ln	1757	1568	1757	1752	1752	1568
Q Serve(g_s), s	0.0	0.0	0.0	0.0	1.9	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	1.9	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	2	2	2	3316	3316	1483
V/C Ratio(X)	0.00	0.00	0.00	0.00	0.27	0.00
Avail Cap(c_a), veh/h	480	428	264	3316	3316	1483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.2	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	0.0	0.0	0.0	0.0	1.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	0.0	0.4	0.0
LnGrp LOS					A	
Approach Vol, veh/h	0			0	900	
Approach Delay, s/veh	0.0			0.0	0.4	
Approach LOS					A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	0.0	100.0				100.0		0.0
Change Period (Y+Rc), s	4.0	* 5.4				5.4		4.7
Max Green Setting (Gmax), s	15.0	* 44				62.6		27.3
Max Q Clear Time (g_c+I1), s	0.0	3.9				0.0		0.0
Green Ext Time (p_c), s	0.0	10.9				0.0		0.0

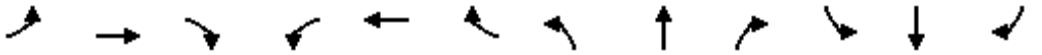
Intersection Summary	
HCM 2010 Ctrl Delay	0.4
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	643	223	34	0	4	0	0	0	1626	173
Future Volume (veh/h)	0	0	643	223	34	0	4	0	0	0	1626	173
Number	3	8	18	7	4	14	1	6	16	5	2	12
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		0.98
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	1845	1845	1900	1845	1900	1845	1845	1845	1505	1505	1505
Adj Flow Rate, veh/h	0	0	0	297	45	0	5	0	0	0	2168	231
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	0	500	425	447	51	0	19	2035	910	2	1442	631
Arrive On Green	0.00	0.00	0.00	0.27	0.27	0.00	0.01	0.00	0.00	0.00	0.50	0.50
Sat Flow, veh/h	0	1845	1568	1248	189	0	1616	3505	1568	1433	2859	1251
Grp Volume(v), veh/h	0	0	0	342	0	0	5	0	0	0	2168	231
Grp Sat Flow(s),veh/h/ln	0	1845	1568	1437	0	0	1616	1752	1568	1433	1430	1251
Q Serve(g_s), s	0.0	0.0	0.0	14.1	0.0	0.0	0.2	0.0	0.0	0.0	31.3	7.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	14.1	0.0	0.0	0.2	0.0	0.0	0.0	31.3	7.0
Prop In Lane	0.00		1.00	0.87		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	500	425	498	0	0	19	2035	910	2	1442	631
V/C Ratio(X)	0.00	0.00	0.00	0.69	0.00	0.00	0.26	0.00	0.00	0.00	1.50	0.37
Avail Cap(c_a), veh/h	0	655	556	618	0	0	235	2035	910	185	1442	631
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	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	21.6	0.0	0.0	30.4	0.0	0.0	0.0	15.4	9.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.4	0.0	0.0	2.6	0.0	0.0	0.0	230.5	1.6
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	0.0	0.0	0.0	5.8	0.0	0.0	0.1	0.0	0.0	0.0	58.4	2.7
LnGrp Delay(d),s/veh	0.0	0.0	0.0	23.0	0.0	0.0	32.9	0.0	0.0	0.0	245.8	11.0
LnGrp LOS				C			C				F	B
Approach Vol, veh/h		0			342			5			2399	
Approach Delay, s/veh		0.0			23.0			32.9			223.2	
Approach LOS					C			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.7	36.4		20.9	0.0	41.1		20.9
Change Period (Y+Rc), s	4.0	5.1		4.1	4.0	5.1		4.1
Max Green Setting (Gmax), s	9.0	17.8		22.0	8.0	18.8		22.0
Max Q Clear Time (g_c+I1), s	2.2	33.3		16.1	0.0	0.0		0.0
Green Ext Time (p_c), s	0.0	0.0		0.7	0.0	0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		197.9
HCM 2010 LOS		F



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	909	0	0	0	4	22	218	2274	0
Future Volume (veh/h)	0	0	0	909	0	0	0	4	22	218	2274	0
Number	3	8	18	7	4	14	1	6	16	5	2	12
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	0.98		1.00	1.00		0.98	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	1845	1845	1900	1845	1845	1845	1845	1845	1845	1456	1456	1456
Adj Flow Rate, veh/h	0	0	0	1212	0	0	0	5	29	291	3032	0
Adj No. of Lanes	2	1	0	2	0	1	1	2	1	1	3	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	3	1	0	332	0	151	1	2516	1100	123	3325	1035
Arrive On Green	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.72	0.72	0.09	0.84	0.00
Sat Flow, veh/h	3408	1845	0	3448	0	1568	1757	3505	1533	1387	3976	1238
Grp Volume(v), veh/h	0	0	0	1212	0	0	0	5	29	291	3032	0
Grp Sat Flow(s),veh/h/ln	1704	1845	0	1724	0	1568	1757	1752	1533	1387	1325	1238
Q Serve(g_s), s	0.0	0.0	0.0	13.0	0.0	0.0	0.0	0.1	0.7	12.0	71.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	13.0	0.0	0.0	0.0	0.1	0.7	12.0	71.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	3	1	0	332	0	151	1	2516	1100	123	3325	1035
V/C Ratio(X)	0.00	0.00	0.00	3.65	0.00	0.00	0.00	0.00	0.03	2.36	0.91	0.00
Avail Cap(c_a), veh/h	957	518	0	332	0	151	91	2516	1100	123	3325	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)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	61.0	0.0	0.0	0.0	5.4	5.5	61.5	7.6	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1200.1	0.0	0.0	0.0	0.0	0.0	636.5	5.0	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	0.0	0.0	0.0	61.5	0.0	0.0	0.0	0.0	0.3	26.4	26.5	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	1261.1	0.0	0.0	0.0	5.4	5.5	698.0	12.6	0.0
LnGrp LOS				F				A	A	F	B	
Approach Vol, veh/h		0			1212			34			3323	
Approach Delay, s/veh		0.0			1261.1			5.5			72.6	
Approach LOS					F			A			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	118.0		17.0	16.0	102.0		0.0
Change Period (Y+Rc), s	4.0	5.1		4.0	4.0	5.1		5.1
Max Green Setting (Gmax), s	7.0	58.9		13.0	12.0	53.9		37.9
Max Q Clear Time (g_c+I1), s	0.0	73.0		15.0	14.0	2.7		0.0
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.2		0.0

Intersection Summary		
HCM 2010 Ctrl Delay	387.4	
HCM 2010 LOS	F	

Notes

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	1839	1799	1853	1780	1801	1815
Vehs Exited	1731	1727	1714	1677	1712	1712
Starting Vehs	281	306	248	270	292	279
Ending Vehs	389	378	387	373	381	380
Travel Distance (mi)	1650	1646	1657	1635	1633	1644
Travel Time (hr)	1970.3	2079.1	1891.0	2004.2	1963.6	1981.7
Total Delay (hr)	1913.1	2022.1	1833.3	1947.6	1906.9	1924.6
Total Stops	6129	6226	6137	6034	6042	6113
Fuel Used (gal)	490.2	515.2	471.8	497.7	486.6	492.3

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	1839	1799	1853	1780	1801	1815
Vehs Exited	1731	1727	1714	1677	1712	1712
Starting Vehs	281	306	248	270	292	279
Ending Vehs	389	378	387	373	381	380
Travel Distance (mi)	1650	1646	1657	1635	1633	1644
Travel Time (hr)	1970.3	2079.1	1891.0	2004.2	1963.6	1981.7
Total Delay (hr)	1913.1	2022.1	1833.3	1947.6	1906.9	1924.6
Total Stops	6129	6226	6137	6034	6042	6113
Fuel Used (gal)	490.2	515.2	471.8	497.7	486.6	492.3

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Acalanes Avenue	14	0.3	20.2	0.1	11
	11	0.0	4.0	0.0	34
Stanley Boulevard	5	17.2	24.2	0.1	12
Quandt Road	4	96.5	141.4	0.4	11
Total		113.9	189.8	0.6	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	6.3	21.5	0.2	26
	19	1.3	16.3	0.1	33
Greenvalley Drive	2	5.2	12.0	0.1	21
Reliez Valle Road	3	39.1	63.3	0.3	14
	20	24.2	27.8	0.0	4
Springhill Road	4	123.9	133.4	0.1	3
Deer Hill Road	5	359.4	398.0	0.4	4
	11	19.5	28.0	0.1	10
Acalanes Avenue	14	11.8	15.8	0.0	9
	15	18.8	25.0	0.1	9
	16	6.7	16.1	0.1	24
	17	7.3	16.4	0.1	16
Mt. Diablo Boulevard	6	4.8	12.9	0.1	19
SR 24 EB Off Ramp	7	1.8	4.6	0.1	48
Total		630.0	791.1	1.7	8

Intersection: 1: Pleasant Hill Road & Rancho View Drive

Movement	EB	SB	SB
Directions Served	LTR	T	TR
Maximum Queue (ft)	91	48	11
Average Queue (ft)	42	11	1
95th Queue (ft)	73	37	8
Link Distance (ft)	306	773	773
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Pleasant Hill Road & Greenvalley Drive

Movement	EB	WB	B60	SB	SB
Directions Served	LTR	LT	T	T	TR
Maximum Queue (ft)	56	611	112	55	75
Average Queue (ft)	14	562	73	12	31
95th Queue (ft)	35	664	112	37	63
Link Distance (ft)	333	494	53	288	288
Upstream Blk Time (%)		82	84		
Queuing Penalty (veh)		0	0		
Storage Bay Dist (ft)					
Storage Blk Time (%)		76			
Queuing Penalty (veh)		0			

Intersection: 3: Pleasant Hill Road & Reliez Valle Road

Movement	EB	EB	SB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	467	486	360	366
Average Queue (ft)	283	457	200	198
95th Queue (ft)	631	473	292	304
Link Distance (ft)	438	438	1259	1259
Upstream Blk Time (%)	33	96		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				34
Queuing Penalty (veh)				0

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

Movement	EB	WB	NB	SB	SB	SB	B20	B20
Directions Served	LTR	LTR	L	T	T	R	T	T
Maximum Queue (ft)	370	255	20	523	520	96	217	222
Average Queue (ft)	338	231	3	470	470	76	169	181
95th Queue (ft)	355	246	15	612	625	140	262	266
Link Distance (ft)	318	213		414	414		127	127
Upstream Blk Time (%)	100	89		86	88		28	86
Queuing Penalty (veh)	0	0		1036	1053		331	1036
Storage Bay Dist (ft)			200			71		
Storage Blk Time (%)				87	81	0		
Queuing Penalty (veh)				0	188	3		

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

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	LT	T	R	L	T	T
Maximum Queue (ft)	225	554	32	47	275	2267	2401
Average Queue (ft)	194	524	3	11	183	2238	2366
95th Queue (ft)	304	543	17	34	335	2325	2480
Link Distance (ft)		504	347	347		2220	2220
Upstream Blk Time (%)		95				40	94
Queuing Penalty (veh)		0				672	1556
Storage Bay Dist (ft)	185				175		
Storage Blk Time (%)	9	97			6	28	66
Queuing Penalty (veh)	52	587			88	81	0

Intersection: 6: Pleasant Hill Road & Mt. Diablo Boulevard/SR 24 EB On Ramp

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: 7: Pleasant Hill Road & SR 24 EB Off Ramp/Old Tunnel Road

Movement	SB
Directions Served	T
Maximum Queue (ft)	3
Average Queue (ft)	0
95th Queue (ft)	2
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Brown Avenue/Miller Drive & 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
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: 10: SR 24 WB Ramps/Laurel Drive & 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: 14: Pleasant Hill Road & Acalanes Avenue

Movement	SB	SB	B11	B11
Directions Served	T	T	T	T
Maximum Queue (ft)	190	254	400	387
Average Queue (ft)	45	206	186	334
95th Queue (ft)	142	305	430	436
Link Distance (ft)	147	147	347	347
Upstream Blk Time (%)	1	20	1	7
Queuing Penalty (veh)	17	428	25	146
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: Pleasant Hill Road

Movement	SB
Directions Served	TR
Maximum Queue (ft)	361
Average Queue (ft)	183
95th Queue (ft)	427
Link Distance (ft)	266
Upstream Blk Time (%)	6
Queuing Penalty (veh)	117
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: 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: 17: Pleasant Hill Road

Movement	SB
Directions Served	TR
Maximum Queue (ft)	217
Average Queue (ft)	80
95th Queue (ft)	174
Link Distance (ft)	314
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 7415

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	1862	1917	1843	1851	1842	1863
Vehs Exited	1713	1762	1702	1717	1718	1722
Starting Vehs	248	253	278	271	270	260
Ending Vehs	397	408	419	405	394	404
Travel Distance (mi)	1671	1713	1684	1662	1656	1677
Travel Time (hr)	1920.3	2017.1	1944.2	1969.7	1967.6	1963.8
Total Delay (hr)	1862.6	1958.1	1886.2	1912.1	1910.2	1905.8
Total Stops	6865	7233	7215	6966	6698	6995
Fuel Used (gal)	478.5	501.2	482.8	489.2	488.4	488.0

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	1862	1917	1843	1851	1842	1863
Vehs Exited	1713	1762	1702	1717	1718	1722
Starting Vehs	248	253	278	271	270	260
Ending Vehs	397	408	419	405	394	404
Travel Distance (mi)	1671	1713	1684	1662	1656	1677
Travel Time (hr)	1920.3	2017.1	1944.2	1969.7	1967.6	1963.8
Total Delay (hr)	1862.6	1958.1	1886.2	1912.1	1910.2	1905.8
Total Stops	6865	7233	7215	6966	6698	6995
Fuel Used (gal)	478.5	501.2	482.8	489.2	488.4	488.0

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Acalanes Avenue	14	0.2	20.1	0.1	11
	11	0.0	4.0	0.0	34
Stanley Boulevard	5	11.6	18.4	0.1	15
Quandt Road	4	40.8	87.7	0.4	18
Total		52.6	130.2	0.6	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	10.1	25.2	0.2	22
	19	1.6	16.2	0.1	33
Greenvalley Drive	2	12.9	19.8	0.1	13
Reliez Valle Road	3	128.6	151.1	0.3	6
	20	33.3	36.9	0.0	3
Springhill Road	4	133.1	142.7	0.1	2
Deer Hill Road	5	333.0	372.6	0.4	4
	11	20.0	28.5	0.1	10
Acalanes Avenue	14	12.1	16.1	0.0	9
	15	18.9	25.1	0.1	9
	16	6.6	16.1	0.1	24
	17	7.8	16.8	0.1	15
Mt. Diablo Boulevard	6	4.8	13.3	0.1	18
SR 24 EB Off Ramp	7	1.7	4.6	0.1	49
Total		724.7	885.0	1.7	7

Intersection: 1: Pleasant Hill Road & Rancho View Drive

Movement	EB	SB
Directions Served	LTR	T
Maximum Queue (ft)	83	50
Average Queue (ft)	41	13
95th Queue (ft)	67	40
Link Distance (ft)	306	773
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Pleasant Hill Road & Greenvalley Drive

Movement	EB	WB	B60	SB	SB
Directions Served	LTR	LT	T	T	TR
Maximum Queue (ft)	64	601	101	88	88
Average Queue (ft)	17	488	44	27	40
95th Queue (ft)	44	712	107	62	74
Link Distance (ft)	333	494	53	288	288
Upstream Blk Time (%)		51	47		
Queuing Penalty (veh)		0	0		
Storage Bay Dist (ft)					
Storage Blk Time (%)		70		0	
Queuing Penalty (veh)		0		0	

Intersection: 3: Pleasant Hill Road & Reliez Valle Road

Movement	EB	EB	SB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	474	491	1277	155
Average Queue (ft)	349	457	938	146
95th Queue (ft)	655	474	1635	189
Link Distance (ft)	438	438	1259	
Upstream Blk Time (%)	45	98	6	
Queuing Penalty (veh)	0	0	58	
Storage Bay Dist (ft)				130
Storage Blk Time (%)			55	7
Queuing Penalty (veh)			248	33

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

Movement	EB	EB	WB	NB	SB	SB	SB	B20	B20
Directions Served	LT	R	LTR	L	T	T	R	T	T
Maximum Queue (ft)	369	125	248	21	530	526	96	231	223
Average Queue (ft)	336	123	150	2	484	480	81	187	186
95th Queue (ft)	351	147	247	10	582	588	137	264	251
Link Distance (ft)	318		213		414	414		127	127
Upstream Blk Time (%)	100		6		91	92		51	91
Queuing Penalty (veh)	0		0		1097	1100		614	1092
Storage Bay Dist (ft)		100		200			71		
Storage Blk Time (%)	0	1			89	80	0		
Queuing Penalty (veh)	1	0			0	185	3		

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

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	T	T	R	L	T	T
Maximum Queue (ft)	225	556	31	6	47	275	2276	2364
Average Queue (ft)	209	524	2	0	12	181	2238	2350
95th Queue (ft)	288	541	16	4	35	342	2329	2463
Link Distance (ft)		504	347	347	347		2220	2220
Upstream Blk Time (%)		98					34	95
Queuing Penalty (veh)		0					561	1580
Storage Bay Dist (ft)	185					175		
Storage Blk Time (%)	15	98				2	23	65
Queuing Penalty (veh)	89	594				35	68	0

Intersection: 6: Pleasant Hill Road & Mt. Diablo Boulevard/SR 24 EB On Ramp

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: 7: Pleasant Hill Road & SR 24 EB Off Ramp/Old Tunnel Road

Movement	SB
Directions Served	T
Maximum Queue (ft)	3
Average Queue (ft)	0
95th Queue (ft)	3
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Brown Avenue/Miller Drive & 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
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: 10: SR 24 WB Ramps/Laurel Drive & 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: 14: Pleasant Hill Road & Acalanes Avenue

Movement	SB	SB	B11	B11
Directions Served	T	T	T	T
Maximum Queue (ft)	192	261	396	388
Average Queue (ft)	50	220	191	335
95th Queue (ft)	143	282	431	437
Link Distance (ft)	147	147	347	347
Upstream Blk Time (%)	1	24	1	7
Queuing Penalty (veh)	15	510	26	139
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: Pleasant Hill Road

Movement	SB
Directions Served	TR
Maximum Queue (ft)	345
Average Queue (ft)	206
95th Queue (ft)	445
Link Distance (ft)	266
Upstream Blk Time (%)	6
Queuing Penalty (veh)	131
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: 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: 17: Pleasant Hill Road

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	18	194
Average Queue (ft)	1	75
95th Queue (ft)	13	149
Link Distance (ft)	314	314
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 8178

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	2263	2295	2244	2328	2313	2288
Vehs Exited	2102	2093	2083	2150	2194	2124
Starting Vehs	258	221	256	240	270	249
Ending Vehs	419	423	417	418	389	413
Travel Distance (mi)	1958	1940	1912	1998	1993	1960
Travel Time (hr)	2184.8	2082.6	2177.1	2092.5	2164.7	2140.3
Total Delay (hr)	2116.4	2014.8	2109.6	2022.3	2095.0	2071.6
Total Stops	8764	8548	8324	9019	8972	8724
Fuel Used (gal)	547.6	524.9	544.9	528.3	545.2	538.2

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	2263	2295	2244	2328	2313	2288
Vehs Exited	2102	2093	2083	2150	2194	2124
Starting Vehs	258	221	256	240	270	249
Ending Vehs	419	423	417	418	389	413
Travel Distance (mi)	1958	1940	1912	1998	1993	1960
Travel Time (hr)	2184.8	2082.6	2177.1	2092.5	2164.7	2140.3
Total Delay (hr)	2116.4	2014.8	2109.6	2022.3	2095.0	2071.6
Total Stops	8764	8548	8324	9019	8972	8724
Fuel Used (gal)	547.6	524.9	544.9	528.3	545.2	538.2

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Acalanes Avenue	14	0.3	20.3	0.1	11
Project Dwy	11	0.0	4.1	0.0	33
Stanley Boulevard	5	12.8	19.5	0.1	15
	37	1.7	9.9	0.1	30
Quandt Road	4	81.8	118.9	0.4	11
Total		96.5	172.8	0.6	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	5.4	20.8	0.2	26
	19	1.1	15.6	0.1	34
Greenvalley Drive	2	5.7	12.5	0.1	21
Reliez Valle Road	3	28.0	51.8	0.3	17
	20	14.3	18.0	0.0	7
Springhill Road	4	65.0	74.5	0.1	5
	37	198.8	234.1	0.4	6
Deer Hill Road	5	64.6	72.6	0.1	4
Project Dwy	11	31.6	40.1	0.1	7
Acalanes Avenue	14	17.6	21.7	0.0	6
	15	41.4	47.5	0.1	5
	16	65.5	74.9	0.1	5
	17	64.0	166.8	0.1	3
Mt. Diablo Boulevard	6	6.2	14.2	0.1	17
SR 24 EB Off Ramp	7	1.9	4.7	0.1	48
Total		611.1	869.5	1.7	8

Intersection: 1: Pleasant Hill Road & Rancho View Drive

Movement	EB	SB	SB
Directions Served	LTR	T	TR
Maximum Queue (ft)	83	37	16
Average Queue (ft)	43	9	1
95th Queue (ft)	72	31	9
Link Distance (ft)	306	773	773
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Pleasant Hill Road & Greenvalley Drive

Movement	EB	WB	B60	SB	SB
Directions Served	LTR	LT	T	T	TR
Maximum Queue (ft)	60	607	112	64	71
Average Queue (ft)	15	567	73	15	32
95th Queue (ft)	39	637	109	45	64
Link Distance (ft)	333	494	53	288	288
Upstream Blk Time (%)		85	87		
Queuing Penalty (veh)		0	0		
Storage Bay Dist (ft)					
Storage Blk Time (%)		77		0	
Queuing Penalty (veh)		0		0	

Intersection: 3: Pleasant Hill Road & Reliez Valle Road

Movement	EB	EB	SB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	454	488	332	355
Average Queue (ft)	271	459	183	195
95th Queue (ft)	627	478	280	308
Link Distance (ft)	438	438	1259	1259
Upstream Blk Time (%)	18	83		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				30
Queuing Penalty (veh)				0

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

Movement	EB	WB	NB	SB	SB	SB	B20	B20
Directions Served	LTR	LTR	L	T	T	R	T	T
Maximum Queue (ft)	365	272	24	512	519	96	208	214
Average Queue (ft)	337	235	3	379	380	71	103	125
95th Queue (ft)	354	256	15	625	640	139	241	277
Link Distance (ft)	318	217		406	406		127	127
Upstream Blk Time (%)	100	82		42	52		13	46
Queuing Penalty (veh)	0	0		502	621		153	551
Storage Bay Dist (ft)			200			71		
Storage Blk Time (%)				56	58	0		
Queuing Penalty (veh)				0	133	2		

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

Movement	WB	WB	NB	NB	SB	SB	SB	SB	B37	B37
Directions Served	L	LT	T	R	L	T	T	T	T	T
Maximum Queue (ft)	225	556	21	34	275	446	446	450	1878	2010
Average Queue (ft)	110	524	2	11	175	373	393	413	1622	1741
95th Queue (ft)	276	543	14	33	309	521	443	458	2450	2592
Link Distance (ft)		504	342	342		351	351	351	1832	1832
Upstream Blk Time (%)		96				26	36	40	20	76
Queuing Penalty (veh)		0				285	395	439	340	1267
Storage Bay Dist (ft)	185				175					
Storage Blk Time (%)	0	92			8	6		60		
Queuing Penalty (veh)	0	558			80	19		0		

Intersection: 6: Pleasant Hill Road & Mt. Diablo Boulevard/SR 24 EB On Ramp

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: 7: Pleasant Hill Road & SR 24 EB Off Ramp/Old Tunnel Road

Movement	SB
Directions Served	T
Maximum Queue (ft)	7
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Brown Avenue/Miller Drive & 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
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: 10: SR 24 WB Ramps/Laurel Drive & 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: 11: Pleasant Hill Road & Project Dwy

Movement	EB	SB	SB	SB
Directions Served	R	T	T	TR
Maximum Queue (ft)	216	390	391	394
Average Queue (ft)	183	154	327	324
95th Queue (ft)	199	383	459	484
Link Distance (ft)	164	342	342	342
Upstream Blk Time (%)	100	2	14	11
Queuing Penalty (veh)	0	21	201	159
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Project Dwy NE & 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: 13: Project Dwy SW & 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: 14: Pleasant Hill Road & Acalanes Avenue

Movement	SB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	166	267	238
Average Queue (ft)	34	230	174
95th Queue (ft)	110	305	277
Link Distance (ft)	152	152	152
Upstream Blk Time (%)	1	94	11
Queuing Penalty (veh)	10	1555	180
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: Pleasant Hill Road

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	60	369	287
Average Queue (ft)	12	336	103
95th Queue (ft)	50	408	228
Link Distance (ft)	262	262	262
Upstream Blk Time (%)		96	0
Queuing Penalty (veh)		1586	5
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Pleasant Hill Road

Movement	SB
Directions Served	T
Maximum Queue (ft)	540
Average Queue (ft)	512
95th Queue (ft)	545
Link Distance (ft)	302
Upstream Blk Time (%)	99
Queuing Penalty (veh)	1240
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: Pleasant Hill Road

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	125	532
Average Queue (ft)	4	506
95th Queue (ft)	63	530
Link Distance (ft)	314	314
Upstream Blk Time (%)	0	99
Queuing Penalty (veh)	0	830
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 11131

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	2360	2452	2350	2328	2489	2397
Vehs Exited	2196	2281	2209	2149	2287	2225
Starting Vehs	238	233	220	218	210	222
Ending Vehs	402	404	361	397	412	394
Travel Distance (mi)	2214	2304	2195	2142	2294	2230
Travel Time (hr)	2133.6	2129.3	2095.7	2065.9	2082.2	2101.3
Total Delay (hr)	2057.0	2050.1	2020.0	1991.9	2003.0	2024.4
Total Stops	10571	10484	10229	9718	10570	10315
Fuel Used (gal)	542.8	545.9	536.1	526.5	534.9	537.2

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	2360	2452	2350	2328	2489	2397
Vehs Exited	2196	2281	2209	2149	2287	2225
Starting Vehs	238	233	220	218	210	222
Ending Vehs	402	404	361	397	412	394
Travel Distance (mi)	2214	2304	2195	2142	2294	2230
Travel Time (hr)	2133.6	2129.3	2095.7	2065.9	2082.2	2101.3
Total Delay (hr)	2057.0	2050.1	2020.0	1991.9	2003.0	2024.4
Total Stops	10571	10484	10229	9718	10570	10315
Fuel Used (gal)	542.8	545.9	536.1	526.5	534.9	537.2

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Acalanes Avenue	14	0.1	20.0	0.1	11
Project Dwy	11	0.0	4.1	0.0	34
Stanley Boulevard	5	17.6	24.9	0.1	11
	37	1.9	8.8	0.1	31
Quandt Road	4	25.0	59.0	0.4	22
Total		44.7	116.8	0.6	19

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	8.0	23.2	0.2	24
	19	1.3	16.1	0.1	33
Greenvalley Drive	2	9.1	16.0	0.1	16
Reliez Valle Road	3	18.5	43.8	0.3	21
	20	8.7	12.3	0.0	10
Springhill Road	4	54.7	64.4	0.1	5
	37	136.9	173.0	0.4	8
Deer Hill Road	5	34.9	42.3	0.1	6
Project Dwy	11	23.4	31.9	0.1	9
Acalanes Avenue	14	18.8	22.9	0.0	6
	15	37.7	43.7	0.1	5
	16	64.3	73.7	0.1	5
	17	59.2	221.1	0.1	4
Mt. Diablo Boulevard	6	5.8	13.8	0.1	18
SR 24 EB Off Ramp	7	2.0	4.8	0.1	46
Total		483.2	803.0	1.7	9

Intersection: 1: Pleasant Hill Road & Rancho View Drive

Movement	EB	SB	SB
Directions Served	LTR	T	TR
Maximum Queue (ft)	90	45	6
Average Queue (ft)	39	11	0
95th Queue (ft)	69	37	6
Link Distance (ft)	306	773	773
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Pleasant Hill Road & Greenvalley Drive

Movement	EB	WB	B60	SB	SB
Directions Served	LTR	LT	T	T	TR
Maximum Queue (ft)	41	600	96	64	72
Average Queue (ft)	13	477	47	23	36
95th Queue (ft)	32	720	110	49	65
Link Distance (ft)	333	494	53	288	288
Upstream Blk Time (%)		49	44		
Queuing Penalty (veh)		0	0		
Storage Bay Dist (ft)					
Storage Blk Time (%)		63			
Queuing Penalty (veh)		0			

Intersection: 3: Pleasant Hill Road & Reliez Valle Road

Movement	EB	EB	SB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	475	492	345	155
Average Queue (ft)	431	461	159	112
95th Queue (ft)	589	481	276	182
Link Distance (ft)	438	438	1259	
Upstream Blk Time (%)	43	95		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				130
Storage Blk Time (%)			8	1
Queuing Penalty (veh)			37	6

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

Movement	EB	EB	WB	NB	SB	SB	SB	B20	B20
Directions Served	LT	R	LTR	L	T	T	R	T	T
Maximum Queue (ft)	363	125	232	11	510	521	96	209	218
Average Queue (ft)	337	120	139	1	423	435	75	85	123
95th Queue (ft)	353	160	231	7	602	604	137	199	270
Link Distance (ft)	318		214		413	413		127	127
Upstream Blk Time (%)	100		5		35	48		7	37
Queuing Penalty (veh)	0		0		419	572		84	450
Storage Bay Dist (ft)		100		200			71		
Storage Blk Time (%)	1	1			49	49	0		
Queuing Penalty (veh)	5	0			0	114	4		

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

Movement	WB	WB	NB	NB	NB	SB	SB	SB	SB	B37	B37
Directions Served	L	LT	T	T	R	L	T	T	T	T	T
Maximum Queue (ft)	225	558	21	5	36	274	408	386	407	1898	1998
Average Queue (ft)	98	524	2	0	11	166	242	322	372	1523	1662
95th Queue (ft)	266	542	12	4	31	283	452	420	447	2463	2644
Link Distance (ft)		504	340	340	340		314	314	314	1855	1855
Upstream Blk Time (%)		99					6	12	29	6	66
Queuing Penalty (veh)		0					66	130	326	100	1103
Storage Bay Dist (ft)	185					175					
Storage Blk Time (%)	0	94				8	2		49		
Queuing Penalty (veh)	0	567				79	5		0		

Intersection: 6: Pleasant Hill Road & Mt. Diablo Boulevard/SR 24 EB On Ramp

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: 7: Pleasant Hill Road & SR 24 EB Off Ramp/Old Tunnel Road

Movement	SB
Directions Served	T
Maximum Queue (ft)	10
Average Queue (ft)	1
95th Queue (ft)	5
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Brown Avenue/Miller Drive & 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
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: 10: SR 24 WB Ramps/Laurel Drive & 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: 11: Pleasant Hill Road & Project Dwy

Movement	EB	SB	SB	SB
Directions Served	R	T	T	TR
Maximum Queue (ft)	182	263	386	374
Average Queue (ft)	149	29	264	283
95th Queue (ft)	168	147	469	460
Link Distance (ft)	149	340	340	340
Upstream Blk Time (%)	100	0	4	5
Queuing Penalty (veh)	0	0	57	77
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Project Dwy NE & 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: 13: Project Dwy SW & 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: 14: Pleasant Hill Road & Acalanes Avenue

Movement	SB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	126	259	262
Average Queue (ft)	14	183	225
95th Queue (ft)	68	309	291
Link Distance (ft)	152	152	152
Upstream Blk Time (%)	0	34	67
Queuing Penalty (veh)	3	572	1109
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: Pleasant Hill Road

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (ft)	56	367	365
Average Queue (ft)	3	297	327
95th Queue (ft)	25	435	385
Link Distance (ft)	262	262	262
Upstream Blk Time (%)		62	68
Queuing Penalty (veh)		1027	1131
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Pleasant Hill Road

Movement	SB
Directions Served	T
Maximum Queue (ft)	544
Average Queue (ft)	504
95th Queue (ft)	573
Link Distance (ft)	302
Upstream Blk Time (%)	96
Queuing Penalty (veh)	1201
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: Pleasant Hill Road

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	250	537
Average Queue (ft)	13	505
95th Queue (ft)	114	529
Link Distance (ft)	314	314
Upstream Blk Time (%)	0	99
Queuing Penalty (veh)	0	830
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 10076

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	1849	1861	1881	1826	1818	1847
Vehs Exited	1733	1741	1734	1705	1729	1729
Starting Vehs	297	291	290	275	312	295
Ending Vehs	413	411	437	396	401	412
Travel Distance (mi)	1639	1638	1617	1626	1663	1637
Travel Time (hr)	2460.3	2442.9	2410.2	2434.6	2418.7	2433.3
Total Delay (hr)	2403.3	2385.8	2353.9	2378.2	2361.2	2376.5
Total Stops	6121	6207	5810	6056	6244	6088
Fuel Used (gal)	600.2	597.6	588.3	594.4	592.5	594.6

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	1849	1861	1881	1826	1818	1847
Vehs Exited	1733	1741	1734	1705	1729	1729
Starting Vehs	297	291	290	275	312	295
Ending Vehs	413	411	437	396	401	412
Travel Distance (mi)	1639	1638	1617	1626	1663	1637
Travel Time (hr)	2460.3	2442.9	2410.2	2434.6	2418.7	2433.3
Total Delay (hr)	2403.3	2385.8	2353.9	2378.2	2361.2	2376.5
Total Stops	6121	6207	5810	6056	6244	6088
Fuel Used (gal)	600.2	597.6	588.3	594.4	592.5	594.6

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Acalanes Avenue	14	-	-	0.1	-
Project Dwy	11	0.0	4.1	0.0	33
Stanley Boulevard	5	15.7	22.5	0.1	13
Quandt Road	4	91.4	132.2	0.4	12
Total		107.2	158.8	0.6	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	7.5	23.0	0.2	24
	19	1.3	15.5	0.1	34
Greenvalley Drive	2	4.9	11.7	0.1	22
Reliez Valle Road	3	44.7	67.7	0.3	13
	20	25.4	29.0	0.0	4
Springhill Road	4	126.4	135.9	0.1	3
Deer Hill Road	5	359.0	397.2	0.4	4
Project Dwy	11	21.1	29.6	0.1	10
Acalanes Avenue	14	12.6	16.6	0.0	8
	15	19.1	25.3	0.1	9
	16	6.6	16.0	0.1	24
	17	6.9	15.6	0.1	16
Mt. Diablo Boulevard	6	4.3	12.2	0.1	20
SR 24 EB Off Ramp	7	1.8	4.6	0.1	49
Total		641.7	800.0	1.7	8

Intersection: 1: Pleasant Hill Road & Rancho View Drive

Movement	EB	SB	SB
Directions Served	LTR	T	TR
Maximum Queue (ft)	93	41	20
Average Queue (ft)	45	11	1
95th Queue (ft)	76	35	9
Link Distance (ft)	306	773	773
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Pleasant Hill Road & Greenvalley Drive

Movement	EB	WB	B60	SB	SB
Directions Served	LTR	LT	T	T	TR
Maximum Queue (ft)	47	612	114	58	81
Average Queue (ft)	14	566	73	11	29
95th Queue (ft)	33	647	112	36	65
Link Distance (ft)	333	494	53	288	288
Upstream Blk Time (%)		84	85		
Queuing Penalty (veh)		0	0		
Storage Bay Dist (ft)					
Storage Blk Time (%)		77		0	
Queuing Penalty (veh)		0		0	

Intersection: 3: Pleasant Hill Road & Reliez Valle Road

Movement	EB	EB	SB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	458	483	437	448
Average Queue (ft)	249	456	226	219
95th Queue (ft)	610	471	381	394
Link Distance (ft)	438	438	1259	1259
Upstream Blk Time (%)	22	96		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				39
Queuing Penalty (veh)				0

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

Movement	EB	WB	NB	SB	SB	SB	B20	B20
Directions Served	LTR	LTR	L	T	T	R	T	T
Maximum Queue (ft)	372	263	16	529	527	96	213	233
Average Queue (ft)	337	230	2	476	477	78	172	185
95th Queue (ft)	355	258	9	601	609	138	256	265
Link Distance (ft)	318	213		414	414		127	127
Upstream Blk Time (%)	100	83		88	89		30	87
Queuing Penalty (veh)	0	0		1054	1069		358	1049
Storage Bay Dist (ft)			200			71		
Storage Blk Time (%)				89	83	0		
Queuing Penalty (veh)				0	191	4		

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

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	LT	T	R	L	T	T
Maximum Queue (ft)	225	556	27	42	275	2274	2410
Average Queue (ft)	202	523	2	11	192	2245	2373
95th Queue (ft)	300	541	14	33	349	2276	2428
Link Distance (ft)		504	342	342		2220	2220
Upstream Blk Time (%)		95				42	95
Queuing Penalty (veh)		0				692	1585
Storage Bay Dist (ft)	185				175		
Storage Blk Time (%)	7	97			7	28	69
Queuing Penalty (veh)	43	588			101	81	0

Intersection: 6: Pleasant Hill Road & Mt. Diablo Boulevard/SR 24 EB On Ramp

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: 7: Pleasant Hill Road & SR 24 EB Off Ramp/Old Tunnel Road

Movement	SB
Directions Served	T
Maximum Queue (ft)	10
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Brown Avenue/Miller Drive & 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
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: 10: SR 24 WB Ramps/Laurel Drive & 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: 11: Pleasant Hill Road & Project Dwy

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	202	395	393
Average Queue (ft)	178	233	343
95th Queue (ft)	198	463	412
Link Distance (ft)	176	342	342
Upstream Blk Time (%)	100	2	8
Queuing Penalty (veh)	0	37	175
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Project Dwy NE & 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: 13: Project Dwy SW & 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: 14: Pleasant Hill Road & Acalanes Avenue

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	189	266
Average Queue (ft)	47	225
95th Queue (ft)	141	279
Link Distance (ft)	150	150
Upstream Blk Time (%)	1	24
Queuing Penalty (veh)	19	603
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Pleasant Hill Road

Movement	SB
Directions Served	TR
Maximum Queue (ft)	349
Average Queue (ft)	157
95th Queue (ft)	399
Link Distance (ft)	266
Upstream Blk Time (%)	4
Queuing Penalty (veh)	109
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: 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: 17: Pleasant Hill Road

Movement	SB
Directions Served	TR
Maximum Queue (ft)	169
Average Queue (ft)	74
95th Queue (ft)	142
Link Distance (ft)	314
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 7757

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	1833	1885	1866	1898	1891	1875
Vehs Exited	1705	1734	1720	1735	1756	1731
Starting Vehs	276	268	274	259	288	271
Ending Vehs	404	419	420	422	423	415
Travel Distance (mi)	1637	1684	1650	1671	1687	1666
Travel Time (hr)	2437.7	2464.4	2336.1	2361.5	2394.0	2398.7
Total Delay (hr)	2380.8	2406.4	2278.9	2303.7	2335.6	2341.1
Total Stops	6832	7303	6906	6968	7263	7052
Fuel Used (gal)	594.9	601.9	572.1	577.7	585.6	586.5

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	1833	1885	1866	1898	1891	1875
Vehs Exited	1705	1734	1720	1735	1756	1731
Starting Vehs	276	268	274	259	288	271
Ending Vehs	404	419	420	422	423	415
Travel Distance (mi)	1637	1684	1650	1671	1687	1666
Travel Time (hr)	2437.7	2464.4	2336.1	2361.5	2394.0	2398.7
Total Delay (hr)	2380.8	2406.4	2278.9	2303.7	2335.6	2341.1
Total Stops	6832	7303	6906	6968	7263	7052
Fuel Used (gal)	594.9	601.9	572.1	577.7	585.6	586.5

Arterial Level of Service: NB Pleasant Hill Road

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Acalanes Avenue	14	0.2	20.1	0.1	11
Project Dwy	11	0.0	4.1	0.0	34
Stanley Boulevard	5	15.8	22.8	0.1	12
Quandt Road	4	32.2	69.4	0.4	23
Total		48.2	116.3	0.6	19

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	10.3	25.8	0.2	21
	19	1.7	16.6	0.1	32
Greenvalley Drive	2	13.7	20.6	0.1	12
Reliez Valle Road	3	130.1	152.3	0.3	6
	20	33.7	37.3	0.0	3
Springhill Road	4	136.9	146.4	0.1	2
Deer Hill Road	5	340.5	380.2	0.4	4
Project Dwy	11	21.0	29.5	0.1	10
Acalanes Avenue	14	12.6	16.7	0.0	8
	15	19.2	25.3	0.1	9
	16	6.7	16.1	0.1	24
	17	9.8	19.2	0.1	13
Mt. Diablo Boulevard	6	5.0	13.4	0.1	18
SR 24 EB Off Ramp	7	1.5	4.3	0.1	52
Total		742.6	903.9	1.7	7

Intersection: 1: Pleasant Hill Road & Rancho View Drive

Movement	EB	SB	SB
Directions Served	LTR	T	TR
Maximum Queue (ft)	85	54	11
Average Queue (ft)	40	15	1
95th Queue (ft)	70	43	7
Link Distance (ft)	306	773	773
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Pleasant Hill Road & Greenvalley Drive

Movement	EB	WB	B60	SB	SB
Directions Served	LTR	LT	T	T	TR
Maximum Queue (ft)	51	607	112	94	108
Average Queue (ft)	12	482	50	28	41
95th Queue (ft)	34	720	117	65	83
Link Distance (ft)	333	494	53	288	288
Upstream Blk Time (%)		56	56		
Queuing Penalty (veh)		0	0		
Storage Bay Dist (ft)					
Storage Blk Time (%)		69		1	
Queuing Penalty (veh)		0		0	

Intersection: 3: Pleasant Hill Road & Reliez Valle Road

Movement	EB	EB	SB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	466	480	1275	155
Average Queue (ft)	375	455	966	146
95th Queue (ft)	639	468	1632	188
Link Distance (ft)	438	438	1259	
Upstream Blk Time (%)	51	98	5	
Queuing Penalty (veh)	0	0	43	
Storage Bay Dist (ft)				130
Storage Blk Time (%)			56	7
Queuing Penalty (veh)			252	32

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

Movement	EB	EB	WB	NB	SB	SB	SB	B20	B20
Directions Served	LT	R	LTR	L	T	T	R	T	T
Maximum Queue (ft)	364	125	243	12	528	525	96	227	218
Average Queue (ft)	337	125	158	1	490	488	85	188	186
95th Queue (ft)	351	126	246	7	552	546	134	258	240
Link Distance (ft)	318		213		414	414		127	127
Upstream Blk Time (%)	100		9		92	93		52	92
Queuing Penalty (veh)	0		0		1108	1113		621	1109
Storage Bay Dist (ft)		100		200			71		
Storage Blk Time (%)	0	1			89	82	0		
Queuing Penalty (veh)	4	0			0	190	4		

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

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	T	T	R	L	T	T
Maximum Queue (ft)	225	551	27	5	34	275	2286	2367
Average Queue (ft)	212	523	2	0	9	191	2243	2352
95th Queue (ft)	279	538	13	4	30	346	2319	2445
Link Distance (ft)		504	342	342	342		2220	2220
Upstream Blk Time (%)		98					36	95
Queuing Penalty (veh)		0					602	1573
Storage Bay Dist (ft)	185					175		
Storage Blk Time (%)	10	98				5	22	69
Queuing Penalty (veh)	62	592				75	64	0

Intersection: 6: Pleasant Hill Road & Mt. Diablo Boulevard/SR 24 EB On Ramp

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: 7: Pleasant Hill Road & SR 24 EB Off Ramp/Old Tunnel Road

Movement	SB
Directions Served	T
Maximum Queue (ft)	5
Average Queue (ft)	0
95th Queue (ft)	3
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Brown Avenue/Miller Drive & 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
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: 10: SR 24 WB Ramps/Laurel Drive & 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: 11: Pleasant Hill Road & Project Dwy

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	192	391	386
Average Queue (ft)	168	212	336
95th Queue (ft)	180	442	412
Link Distance (ft)	161	342	342
Upstream Blk Time (%)	100	2	8
Queuing Penalty (veh)	0	34	161
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Project Dwy NE & 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: 13: Project Dwy SW & 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: 14: Pleasant Hill Road & Acalanes Avenue

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	172	262
Average Queue (ft)	46	218
95th Queue (ft)	137	301
Link Distance (ft)	151	151
Upstream Blk Time (%)	1	24
Queuing Penalty (veh)	20	596
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Pleasant Hill Road

Movement	SB
Directions Served	TR
Maximum Queue (ft)	348
Average Queue (ft)	195
95th Queue (ft)	439
Link Distance (ft)	266
Upstream Blk Time (%)	7
Queuing Penalty (veh)	166
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: 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: 17: Pleasant Hill Road

Movement	SB
Directions Served	TR
Maximum Queue (ft)	183
Average Queue (ft)	77
95th Queue (ft)	160
Link Distance (ft)	314
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 8419