Traffic Impact Study for SOMO Village

Prepared for the City of Rohnert Park

Submitted by

W-Trans

November 27, 2019

TRAFFIC ENGINEERING
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Executive Summary

The SOMO Village project is on a 179-acre site in southeast Rohnert Park and is generally bounded by Camino Colegio on the north, Railroad Avenue on the south, Bodway Parkway on the east, and the SMART rail corridor on the west. The project would retain approximately 700,000 square feet of existing nonresidential development and add a total of 1,750 new residential units as well as 123,000 square feet of new nonresidential uses.

The anticipated trip generation of SOMO Village at buildout was compared to the assumptions included in the 2009 Sonoma Mountain Village EIR, and it was found that the proposed project would be expected to generate fewer daily and p.m. peak hour trips, but more a.m. peak hour trips. At buildout, SOMO Village is projected to add just over 14,000 new daily trips to the street network beyond those already occurring including approximately 920 during the a.m. peak hour and 1,290 during the p.m. peak hour.

Peak hour traffic conditions at 24 intersections were evaluated to determine the potential impacts associated with development of the project. All but four of the intersections operate acceptably under existing conditions, with the exceptions being East Cotati Avenue/La Salle Avenue in the City of Cotati and Old Redwood Highway Railroad Avenue, Petaluma Hill Road/Railroad Avenue, and Petaluma Hill Road-Main Street/Adobe Road in the County of Sonoma. Under Existing plus Project conditions, the project would result in significant traffic impacts to these four intersections plus an additional intersection at East Cotati Avenue/Camino Colegio in Rohnert Park.

Under Future Conditions without the SOMO Village project, 10 of the 24 study intersections are projected to operate unacceptably. These include East Cotati Avenue/Old Redwood Highway, East Cotati Avenue/La Salle Avenue, East Cotati Avenue/Camino Colegio, East Cotati Avenue/Snyder Lane, East Cotati Avenue/Bodway Parkway, East Cotati Avenue/Petaluma Hill Road, Petaluma Hill Road/Valley House Drive, Old Redwood Highway/Railroad Avenue, Petaluma Hill Road/Railroad Avenue, and Petaluma Hill Road-Main Street/Adobe Road. With the addition of SOMO Village traffic to future conditions, 11 intersections are anticipated to operate unacceptably, including the 10 already projected to operate unacceptably without the project plus Camino Colegio/Manchester Avenue. The project's effects on delay and levels of service would be considered significant at 10 of the 11 intersections (with the exception being East Cotati Avenue/Bodway Parkway where the project's impact would be considered less than significant per the City's criteria).

Several of the intersections where the project would have a significant traffic impact are located in the City of Cotati and County of Sonoma. The project should be responsible for contributing a proportionate share of the costs to fund identified improvements at these locations, except for three locations in the County of Sonoma where the project should be required to obtain permits from the County to construct the improvements: at Petaluma Hill Road/Valley House Drive the project should be responsible for lengthening turn pockets and completing upgrades to the traffic signal equipment and operations; at Petaluma Hill Road/Railroad Avenue the project should be responsible for installing a traffic signal and adding turn pocket storage; and at East Cotati Avenue/Petaluma Hill Road the project should be responsible for lengthening a turn pocket and completing upgrades to the traffic signal equipment and operations (improvements to this intersection would be required once SOMO Village initiates any development beyond Phase 1).

The project should be responsible for completing several intersection and roadway improvements in Rohnert Park. These include modifying the East Cotati Avenue/Snyder Lane-Maurice Avenue intersection to add a second southbound left turn lane, installing all-way stop-controls at Camino Colegio/Manchester Avenue, modifying Camino Colegio to provide sufficient space for on-street bike lanes and left-turn pockets at the project intersections, and modifying the signal phasing at East Cotati Avenue/Camino Colegio. For any development in SOMO Village occurring beyond Phase 1, the project should also be responsible for constructing an eastbound right-turn pocket at the East Cotati Avenue/Camino Colegio intersection. Bodway Parkway should be extended to Railroad Avenue in tandem with any SOMO Village development occurring beyond Phase 1, or in the next 10

to 15 years, whichever occurs first. If not constructed by the project in the near-term, the project should contribute to the cost of the roadway extension through payment of the City's PFFP fees.

The project would be well-served by both bus and rail transit. The project would need to complete several improvements in order to establish effective connectivity to transit and link the project site to the current and planned pedestrian and bicycle networks. The project should be responsible for relocating the bus stop at Camino Colegio/Manchester Avenue to the northwest intersection corner. A new crosswalk incorporating high-visibility crossing treatments should be installed at the Bodway Parkway/Wisdom Lane intersection. New sidewalks must be constructed on all new project streets as well as the project frontages on Camino Colegio and Bodway Parkway. The project should construct additional connections to the SMART multiuse pathway 1) in the northern portion of the site, 2) between the B Street/SOMO Avenue intersection and the SMART path, and 3) in the southern portion of site as part of future SOMO Village development occurring beyond Phase 1. The project should be responsible for extending the SMART path southward from SOMO Avenue to Railroad Avenue, and for installing pedestrian-scale lights on the SMART path between the Cotati SMART station and the pedestrian connection points to SOMO Village. Finally, the project should be responsible for constructing a Class 1 pathway segment between Bodway Parkway and the SMART multi-use path.

Introduction

This report presents an analysis of the anticipated traffic impacts that would be associated with development of the revised SOMO Village Final Development Plan in the City of Rohnert Park. The traffic study was completed in accordance with the criteria established by the City of Rohnert Park, and is consistent with standard traffic engineering techniques.

Prelude

The purpose of a traffic impact study is to provide City staff and policy makers with data that they can use to make an informed decision regarding the potential traffic impacts of a proposed project, and any associated improvements that would be required to mitigate these impacts to a level of insignificance as defined by the City's General Plan or other policies. Vehicular traffic impacts are typically evaluated by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on existing travel patterns or anticipated travel patterns specific to the proposed project, then analyzing the impact the new traffic would be expected to have on critical intersections or roadway segments. Impacts relative to access for pedestrians, bicyclists, and to transit are also addressed.

Project Profile

The proposed project site is approximately 179 acres bounded by Camino Colegio, Bodway Parkway, Railroad Avenue, and the SMART rail corridor. The project would include a mix of uses and would retain approximately 700,000 square feet of existing nonresidential development. A total of 1,750 new residential units would be constructed. Proposed nonresidential uses include 103,000 square feet of retail/commercial, a 10,000 square foot childcare facility, and a 10,000 square foot health club.

The project includes an internal grid street network with several connections to the surrounding street system, including extensions of Mitchell Drive, Manchester Avenue, Waterside Lane, and Wisdom Lane. Valley House Drive would be extended westward into the project site and called SOMO Avenue. The project would also extend Bodway Parkway south from Valley House Drive to Railroad Avenue and includes construction of a modern roundabout at the Valley House Drive/Bodway Parkway intersection.

The traffic impact study is based on development projections supplied by the applicant in January 2019 and a project site plan dated May 17, 2019.

Transportation Setting

Operational Analysis

Study Area and Periods

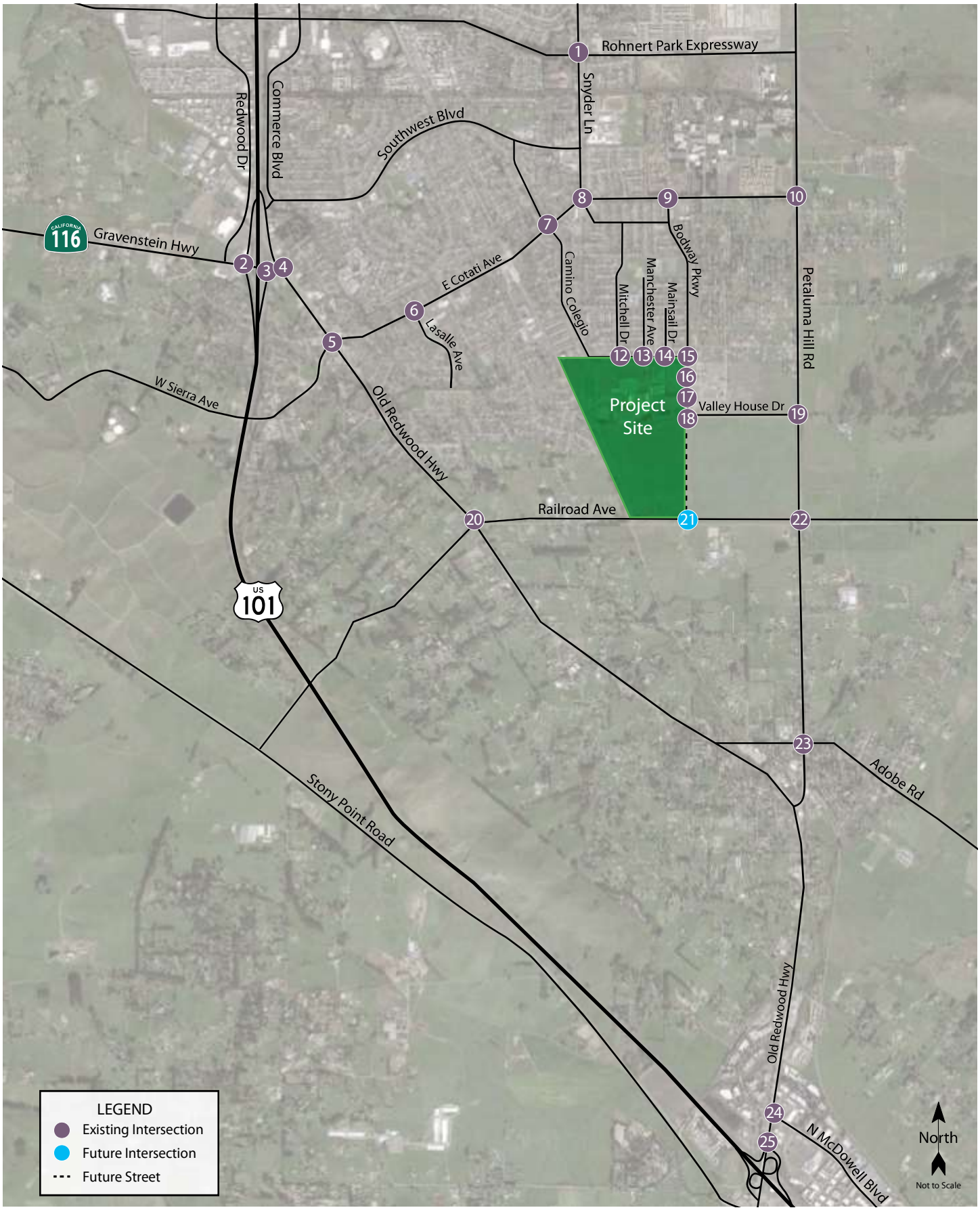
The study area for the analysis was established in consideration of the intersections previously evaluated in the *Sonoma Mountain Village Project DEIR,* PBS&J, 2009 (referred to herein as the "Sonoma Mountain Village EIR"), as well as consultation with City Staff. The analysis of potential traffic impacts includes intersections near the project site that are either existing, would be modified, or would be created upon development of the project, as well as key intersections beyond the immediate project area in Rohnert Park in the County of Sonoma and the Cities of Cotati and Petaluma that may be affected by project-related traffic.

The study includes the following intersections. Intersections located in jurisdictions other than Rohnert Park are denoted in parentheses. Note that intersection 11 is not included in the analysis as it was a previously-proposed intersection that is no longer reflected on the project site plan.

1. Rohnert Park Expressway/Snyder Lane
2. Gravenstein Highway/US 101 South Ramps (Cotati)
3. Gravenstein Highway/US 101 North Off-ramp (Cotati)
4. Gravenstein Highway/Old Redwood Highway (Cotati)
5. East Cotati Avenue/Old Redwood Highway (Cotati)
6. East Cotati Avenue/La Salle Avenue (Cotati)
7. East Cotati Avenue/Camino Colegio
8. East Cotati Avenue/Snyder Lane
9. East Cotati Avenue/Bodway Parkway
10. East Cotati Avenue/Petaluma Hill Road (County of Sonoma)
12. Camino Colegio/Mitchell Drive
13. Camino Colegio/Manchester Avenue
14. Camino Colegio/Mainsail Drive
15. Camino Colegio/Bodway Parkway
16. Bodway Parkway/Waterside Lane
17. Bodway Parkway/Wisdom Lane
18. Bodway Parkway/Valley House Drive-SOMO Avenue
19. Petaluma Hill Road/Valley House Drive (County of Sonoma)
20. Old Redwood Highway/Railroad Avenue (County of Sonoma)
21. Railroad Avenue/Bodway Parkway Extension (County of Sonoma)
22. Petaluma Hill Road/Railroad Avenue (County of Sonoma)
23. Petaluma Hill Road-Main Street/Adobe Road (County of Sonoma)
24. Old Redwood Highway/North McDowell Avenue (Petaluma)
25. Old Redwood Highway/US 101 North Ramps (Petaluma)

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute.

The locations of the study intersections are shown in Figure 1.



Note: Intersection 11 is not included as it was a previously-proposed intersection that is no longer reflected on the project site plan.

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Traffic Impact Study for SOMO Village

Figure 1 – Study Area

Study Area

Adjacent Roadways

Camino Colegio is identified as a major collector in the Rohnert Park General Plan and forms the northern boundary of the project site. The corridor includes four lanes as well as left-turn lanes at most side streets and driveways. Near the project site the street includes sidewalks on the north side and an asphalt pathway on the south side of the street. Landscaped medians separate directions of travel along the project frontage. The posted speed limit is 35 mph.

Bodway Parkway serves as a north-south arterial connecting residences in the eastern portion of the city to the project area. The corridor forms the eastern boundary of the project site and includes one lane in each direction separated by a 20-foot wide landscaped median, on-street bicycle lanes, and sidewalks on both sides of the street. The posted speed limit is 30 mph.

Valley House Drive is an east-west arterial street that connects the current terminus of Bodway Parkway to Petaluma Hill Road. To the west of Bodway Parkway, the street currently serves as one of the two access points to SOMO Village. A sidewalk exists on the north side of the street, and the one-block segment east of Bodway Parkway includes bike lanes. The posted speed limit is 35 mph.

Railroad Avenue is the southern boundary of the project site and is in the jurisdiction of the County of Sonoma. The Sonoma County General Plan 2020 identifies the corridor as a rural minor arterial. The roadway is comprised of two travel lanes (one lane in each direction) and has a rural character, with paved shoulders varying from two to three feet wide near the project site. The street has a posted speed limit of 45 mph.

Study Intersections

Rohnert Park Expressway/Snyder Lane is signalized, with protected left-turn phasing and crosswalks on all four intersection legs.

Gravenstein Highway/US 101 South Ramps is located in the City of Cotati. The intersection is signalized with marked crosswalks on the north and south legs.

Gravenstein Highway/US 101 North Off-ramp is a signalized "tee" intersection located in the City of Cotati. The intersection has a marked crosswalk on the southern leg.

Gravenstein Highway/Old Redwood Highway is signalized, with split phasing and marked crosswalks on all four legs. The intersection is in the City of Cotati.

East Cotati Avenue/Old Redwood Highway is located within the downtown "hub" of the City of Cotati. The intersection is signalized with protected left-turn phasing and crosswalks on all four legs.

East Cotati Avenue/La Salle Avenue, located in the City of Cotati, is all-way stop-controlled and includes crosswalks on all four legs.

East Cotati Avenue/Camino Colegio is signalized with protected left-turn phasing on both East Cotati Avenue and Camino Colegio. Marked crosswalks are provided on all legs of the intersection.

East Cotati Avenue/Snyder Lane is signalized with protected left-turn phasing on all approaches and crosswalks on all legs.

East Cotati Avenue/Bodway Parkway is signalized with protected left-turn phasing on East Cotati Avenue and split phasing on Bodway Parkway. Crosswalks exist on all four legs.

East Cotati Avenue/Petaluma Hill Road is a signalized "tee" intersection in the County of Sonoma. The intersection has protected left-turn phasing on northbound Petaluma Hill Road and crosswalks on the west and north legs.

Camino Colegio/Mitchell Drive is an unsignalized tee intersection with stop controls and crosswalks on all three existing legs. The proposed project includes an extension of Mitchell Drive that would form a new southern leg of the intersection.

Camino Colegio/Manchester Avenue is an unsignalized four-legged intersection including stop controls on the north and south approaches. Marked crosswalks are present on the northern and eastern legs. The southern leg currently serves as one of the two existing access points to SOMO Village.

Camino Colegio/Mainsail Drive is an unsignalized tee intersection with stop controls and a marked crosswalk on the northern leg. As part of the proposed project an extension of Mainsail Drive that would form a new southern leg would be constructed.

Camino Colegio/Bodway Parkway is an unsignalized tee intersection with stop controls on the eastbound approach. There are marked crosswalks on the west and south legs.

Bodway Parkway/Waterside Lane is an unsignalized tee intersection with stop controls on the westbound approach. A continuous median on Bodway Parkway passes through the intersection, limiting access to and from Waterside Lane to right turns. Marked crosswalks are located on the eastern and southern intersection legs. The proposed project would extend Waterside Lane to the west, retaining the raised median on Bodway Parkway.

Bodway Parkway/Wisdom Lane is an unsignalized tee intersection with stop controls and a marked crosswalk on the east leg. A break in the median on Bodway Parkway allows full access to and from Wisdom Lane. The proposed project would extend Wisdom Lane to the west.

Bodway Parkway/Valley House Drive is an unsignalized, all-way stop-controlled tee intersection. A marked crosswalk is on the northern leg. The western leg serves as a driveway providing one of two existing access points to SOMO Village and would be converted to a public street as part of the proposed project. The project site plan refers to the street as "SOMO Avenue" to the west of Bodway Parkway.

Petaluma Hill Road/Valley House Drive is in the County of Sonoma. The intersection is signalized with protected left-turn phasing on Petaluma Hill Road and split phasing in the east-west directions. The eastern leg is a private driveway. Crosswalks are located on the western and southern intersection legs.

Old Redwood Highway/Railroad Avenue is located in the County of Sonoma and is unsignalized with stop controls on the eastbound and westbound Railroad Avenue approaches.

Railroad Avenue/Bodway Parkway does not currently exist but would be created upon the project's extension of Bodway Parkway to Railroad Avenue.

Petaluma Hill Road/Railroad Avenue is an unsignalized four-legged intersection in the County of Sonoma. The east and west approaches of Railroad Avenue are stop-controlled.

Petaluma Hill Road-Main Street/Adobe Road is in the County of Sonoma, in the northern portion of the unincorporated community of Penngrove. The intersection is signalized with split phasing in the northbound and southbound directions and permitted phasing in the eastbound and westbound directions. Crosswalks exist on the northern, southern, and western intersection legs.

Old Redwood Highway/North McDowell Avenue is a signalized intersection in the City of Petaluma. North McDowell Boulevard operates with split phasing, and protected left-turn phasing is used on Old Redwood Highway. Marked crosswalks exist on all four intersection legs. For the purposes of this analysis, Old Redwood Highway is presumed to run in an east-west alignment at this intersection.

Old Redwood Highway/US 101 North Ramps is a signalized intersection in the City of Petaluma. A crosswalk is provided across the US 101 offramp approach. For the purposes of this analysis, Old Redwood Highway is presumed to run in an east-west alignment at this intersection.

The existing lane configurations and controls at the study intersections are shown in Figure 2.

Alternative Modes

Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. In general, a network of sidewalks provide access for pedestrians to and from existing neighborhoods to the north of the proposed project site, with additional sidewalks constructed as part of newly-constructed neighborhoods to the east. High-visibility crosswalks including yellow-green crossing signs with inset pedestrian-activated flashing lights are located on Bodway Parkway at the Camino Colegio and newly-constructed Waterside Lane intersections.

Bicycle Facilities

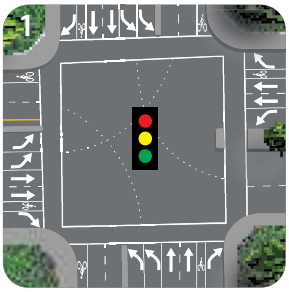
The *Highway Design Manual*, Caltrans, 2017, classifies bikeways into three categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.

The SMART multi-use pathway runs along the east side of the SMART rail corridor through much of Rohnert Park, including along the proposed project's western boundary, with the southern end currently terminating at Valley House Drive, referred to as SOMO Avenue on the project site plan. From Rohnert Park, the pathway is planned to extend south to Petaluma and north to Santa Rosa (and beyond).

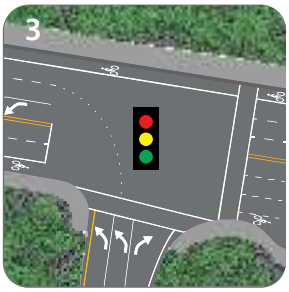
Class II bike lanes exist along the length of Bodway Parkway including the project frontage. Bike lanes also exist along a portion of Camino Colegio to the north of the project area near East Cotati Avenue, and on the extended roadway network along East Cotati Avenue, Snyder Lane, and Petaluma Hill Road. A one-block long segment of Valley House Drive along the frontage of the Southeast Specific Plan area was recently marked with bike lanes. Near the project site between Magnolia Avenue and Bodway Parkway, a Class I facility exists on the west and south sides of Camino Colegio.

The City's planned bicycle system is shown in the General Plan, and the Sonoma County Transportation Authority's 2014 *Countywide Bicycle and Pedestrian Master Plan Update* incorporates the City's planned facilities into the broader regional network. The City and SCTA bike plans are generally consistent in the area except for the manner in which a new Class I path is shown to connect Bodway Parkway to the SMART path. The City's bike plan depicts the connection along the southern developed portion of the SOMO Village site, generally near where 5th Street is shown on the SOMO Village site plan, while the SCTA plan depicts the path extending westward from the Bodway Parkway/SOMO Avenue-Valley House Drive intersection. The SCTA plan labels the path to be part of the "Laguna de Santa Rosa Trail Extension" and shows the path crossing the SMART tracks.



Rohnert Park Expy / Snyder Ln

Grav. Hwy / 101 S Ramps

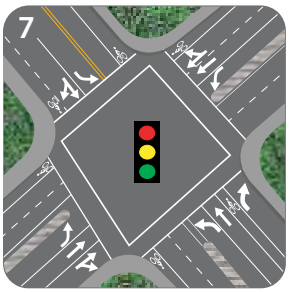


Grav. Hwy / 101 N Off-Ramp

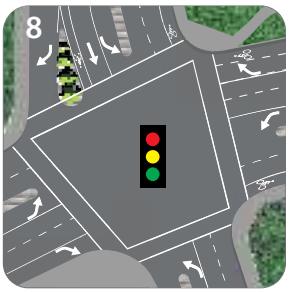
Grav. Hwy / 101N Ramps

E Cotati Ave / ORH

E Cotati Ave / La Salle Ave

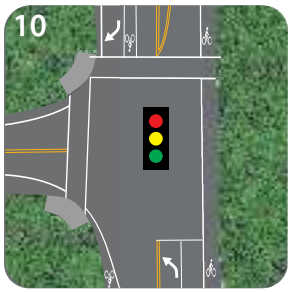


E Cotati Ave / Camino Colegio

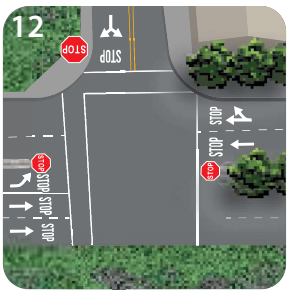


E Cotati Ave / Snyder Ln

E Cotati Ave / Bodway Pkwy



E Cotati Ave / Pet. Hill Rd

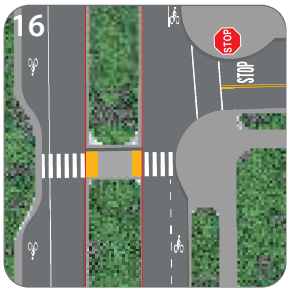


Camino Col. / Mitchell Dr

Camino Col. / Manchester

Camino Col. / Mainsail Dr

Camino Col. / Bodway Pkwy

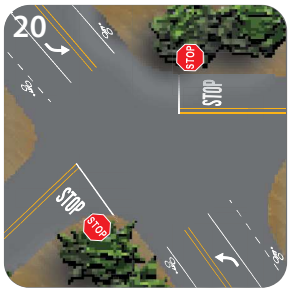


Bodway Pkwy / Waterside Ln

Bodway Pkwy / Wisdom Ln

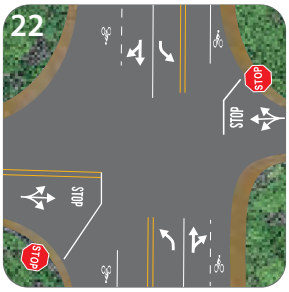
Bodway / Valley House-SOMO

Pet. Hill Rd / Valley House Dr



ORH / Railroad Ave

Railroad / Bodway Pkwy Ext



Pet. Hill Rd / Railroad Ave

Pet. Hill Rd-Main St / Adobe

ORH / N McDowell Ave *

ORH/101N Ramps *

* Old Redwood Highway considered to run east-west at these intersections

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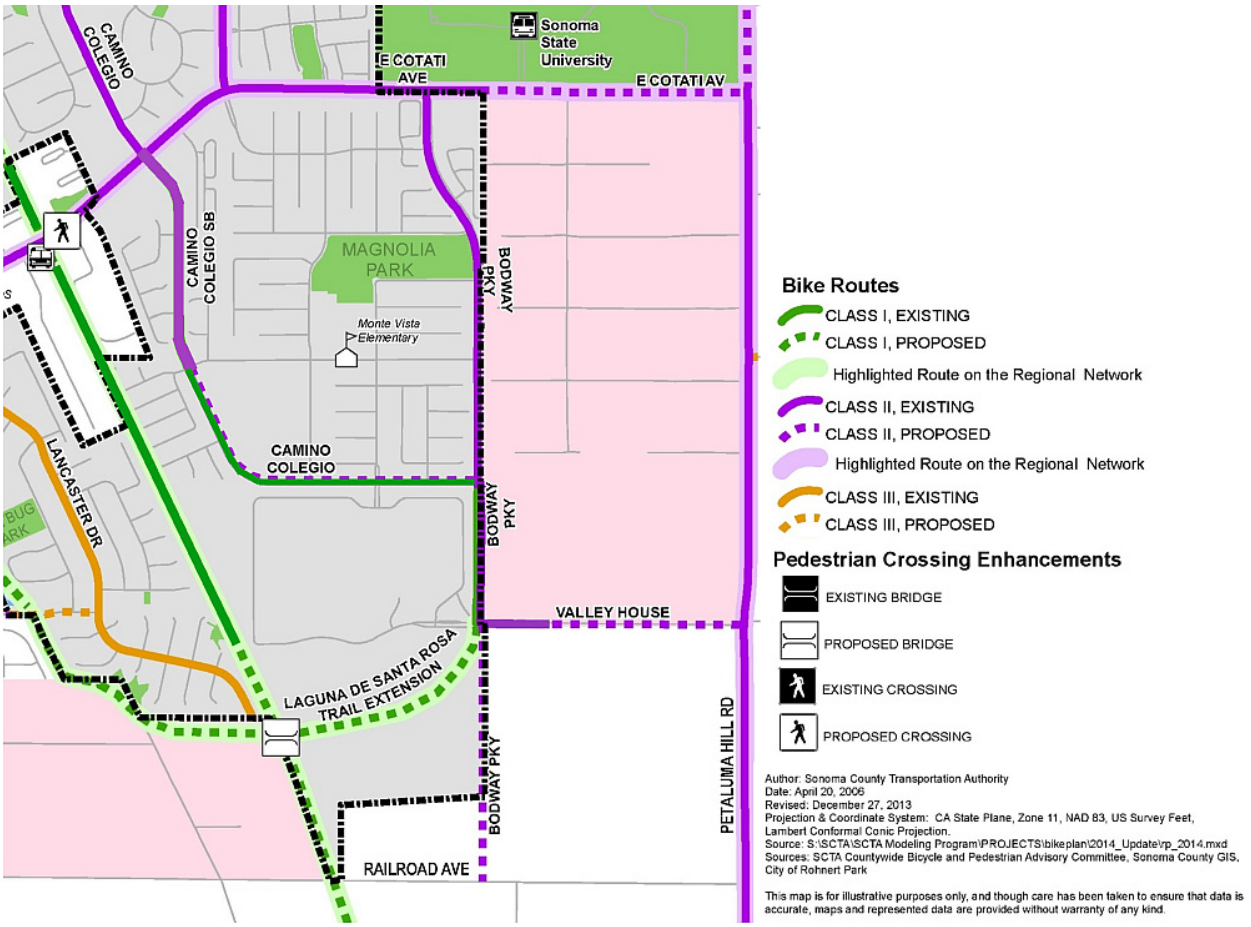
Traffic Impact Study for SOMO Village

Figure 2 – Existing Lane Configurations

The existing and planned bicycle facilities near the proposed project are shown in Figure 3.

Figure 3 – Existing and Planned Bicycle Facilities



Source: Excerpt from *Countywide Bicycle and Pedestrian Master Plan 2014 Update,* SCTA, 2014, modified to show recently completed facilities

Credo High School Safe Routes to School

Credo High School is a public charter school within the existing SOMO Village development that has an attendance of 400 students as of Fall 2018. Credo High School recently participated in a Safe Routes to School Engineering Assessment of the existing pedestrian, bicyclist, and public transit facilities servicing the campus. The *Credo High School - Safe Routes to School Engineering Evaluation* report, W-Trans, 2019 includes recommendations for improvement of facilities in the vicinity. Recommendations were based on observation from a Walking Audit conducted in 2017 as well as a community meeting with stakeholders.

Camino Colegio provides access to Credo High School via the intersection of Camino Colegio/Manchester Avenue. During the Walking Audit, drivers were observed speeding along Camino Colegio. Participants from the Walking Audit and Community Meeting requested more traffic calming controls at Camino Colegio/Manchester Avenue to improve pedestrian and bicyclist safety. There are two bus stops on Camino Colegio at the Manchester Avenue intersection. Eastbound buses stop on the southeast intersection corner while westbound buses stop on the northeast corner. Both stops are in high demand from students during school peak hours. There are currently no bus stop amenities and the sidewalk at the northeast (westbound) bus stop is too narrow to accommodate the

volume of students observed following school dismissal. The Safe Routes to School report recommends the following improvements.

Camino Colegio/Manchester Avenue Intersection

- Consideration should be made for curb extensions at all four intersection corners.
- Installation of All-Way Stop Controls is recommended; if the control is implemented, a new crosswalk should also be installed on the west leg.
- The northeast (westbound) bus stop should be relocated to the northwest corner of the intersection.
- Along with the recommended curb extensions, widening of the Camino Colegio sidewalk on the northwest intersection corner near the relocated bus stop should be considered.

Camino Colegio Frontage

- School zone signs should be installed in both directions along Camino Colegio between the intersections with Manchester Avenue and Bodway Parkway.
- Planned Class II bicycle lanes along Camino Colegio should be given high priority for completion.

Transit Facilities

Sonoma County Transit

Sonoma County Transit (SCT) is the principal transit service within eastern Rohnert Park, providing daily local and intercity service. The following five bus routes serve the project area, with stops on Camino Colegio at the intersection of Manchester Avenue.

- SCT local Route 10 generally operate on weekdays between 6:30 a.m. and 6:00 p.m. and on Saturday between 9:00 a.m. and 5:00 pm. This route provide access to Camino Colegio near the project site, major shopping centers throughout the City, downtown Cotati, Sonoma State University and several Rohnert Park and Cotati neighborhoods.
- SCT Route 26 provides intercity service to Cotati and Rohnert Park, operating between Monday and Saturday with headways of approximately every 60 minutes between 6:30 a.m. and 5:30 p.m. The route provides service between the Cotati Hub, Sonoma State University, and SOMO Village.
- SCT Route 44 provides intercity service to Petaluma, Rohnert Park, and Santa Rosa. Route 44 operates daily with approximately 40- to 120-minute headways between 6:30 a.m. and 8:30 p.m. on weekdays, and approximately two- to four-hour headways between 7:00 a.m. and 8:00 p.m. on weekends.
- SCT Route 46 also provides intercity service between Santa Rosa, Sonoma State University, and the Cotati SMART Depot.
- SCT Route 52 provides intercity service between Sebastopol and Rohnert Park, and stops at the Cotati SMART Depot.

All SCT buses are wheelchair lift-equipped and can transport two wheelchair passengers at a time. SCT allows bikes on all its buses. Buses are equipped with a front-loading bike rack that accommodates either two or three bicycles. When the front-loading rack is full, bus drivers may allow up to two bikes inside the bus.

Golden Gate Transit

Golden Gate Transit (GGT) provides daily interregional service along the US 101 corridor between Santa Rosa and San Francisco. GGT Route 101 stops on Old Redwood Highway approximately one mile from the project area. The route operates with approximately one-hour headways in each direction seven days a week. All GGT buses are handicap accessible and equipped with a front-loading bike rack that accommodates either two or three bicycles.

SMART Rail

The Sonoma-Marin Area Rail Transit (SMART) commuter rail system currently operates between San Rafael and the Sonoma County Airport. SMART includes stations at the major population and job centers of the North Bay, including the Cotati station that is approximately one-half mile north of the project site. Commuter rail service is provided by 17 round-trip trains on weekdays and five round-trip trains on weekends. Typical headways during the weekday morning and evening commute periods are 30 minutes, with longer headways during midday, late evening, and weekend periods. An extension of the SMART rail service to Larkspur is expected to open in 2020, with plans underway to extend the line north to Windsor.

Dial-a-Ride

Dial-a-Ride, also known as paratransit or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. Sonoma County Paratransit is designed to serve the needs of individuals with disabilities within Sonoma County. Service days are Monday through Friday from 5:00 a.m. to 11:00 p.m., and Saturday and Sunday from 7:00 a.m. to 9:00 p.m.

Capacity Analysis

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2010. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The Levels of Service for the intersections with side street stop controls were analyzed using the "Two-Way Stop-Controlled" intersection capacity method from the HCM. This methodology determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection.

Intersections that may become a roundabout in the future were evaluated using the "Roundabout" methodology from the HCM. This methodology considers traffic volumes on entering and circulating movements as well as the configuration of lanes. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology, except for movements where the projected volume-to-capacity ratio exceeds 1.0, in which case a LOS F is reported.

The intersections with stop signs on all approaches were analyzed using the "All-Way Stop-Controlled" Intersection methodology from the HCM. This methodology evaluates delay for each approach based on turning movements, opposing and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection overall, which is then related to a Level of Service.

The intersections that are currently signalized or may be signalized in the future were evaluated using the "Signalized" methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology.

The ranges of delay associated with the various levels of service are indicated in Table 1.

Table 1 – Intersection Level of Service Criteria			
LOS	**Two-Way Stop-Controlled**	**All-Way Stop-Controlled**	**Signalized**
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach and wait for vehicle to clear from one or more approaches prior to entering the intersection.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles must stop.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop, and drivers consider the delay excessive.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 50 seconds. Drivers enter long queues on all approaches.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Reference: *Highway Capacity Manual,* Transportation Research Board, 2010

Traffic Operation Standards

The study intersections are in the City of Rohnert Park, City of Cotati, County of Sonoma, and City of Petaluma. Following are the traffic operation standards applicable to each jurisdiction.

City of Rohnert Park

The applied thresholds of significance for intersection impacts are based on those included in Policy TR-1 of the Rohnert Park 2020 General Plan, which stipulates that LOS C is the minimum acceptable standard. Policy TR-1 also indicates that intersections operating at LOS D or lower at the time a development application is submitted are allowable, so long as the development results in no further LOS reduction, and provided that no feasible improvements exist to improve the LOS.

City of Cotati

According to the *Cotati General Plan Policy C1 1.3*, the minimum acceptable Level of Service (LOS) standard for intersections is LOS D. A significant traffic-related impact would occur if implementation of a project would cause an intersection to operate below the General Plan's standard of LOS D, or LOS E for intersections within the

boundaries of the Downtown Specific Plan (this includes the intersection at East Cotati Avenue/Old Redwood Highway).

County of Sonoma

The level of service standard for County intersection operations is to maintain a Level of Service D or better. A project would have a significant traffic impact if the project's traffic would cause an intersection currently operating at an acceptable level of service (LOS D or better) to operate at an unacceptable level (LOS E or worse). If the intersection currently operates or is projected to operate below the County standard, the project's impact is considered significant and cumulatively considerable if it causes the average delay to increase by five seconds or more.

The above criteria applies to all controlled intersections except for driveways and minor side streets that have less than 30 vehicle trips per hour per approach or exclusive left turn movement. At the study intersections, this provision only applies to the westbound approach at Petaluma Hill Road/Railroad Avenue; the remaining stop-controlled approaches have volumes exceeding 30.

City of Petaluma

The *Petaluma General Plan 2025* has an adopted Level of Service (LOS) standard for streets that indicates the minimum acceptable operation is LOS D. General Plan Policy 5-P-10 states "Maintain an intersection level of service (LOS) standard for motor vehicle circulation that ensures efficient traffic flow and supports multi-modal mobility goals. LOS should be maintained at Level D or better for motor vehicles due to traffic from any development project."

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the a.m. and p.m. peak periods. This scenario does not include traffic volumes associated with proposed new development at SOMO Village but does include the traffic associated with the existing uses on the SOMO Village site (which would continue to exist in the future). Traffic volume data was collected in January and March 2019 while all local schools and Sonoma State University were in session. The existing traffic volumes are shown in Figure 4.

Under existing conditions, all but the following four of the existing study intersections are operating acceptably.

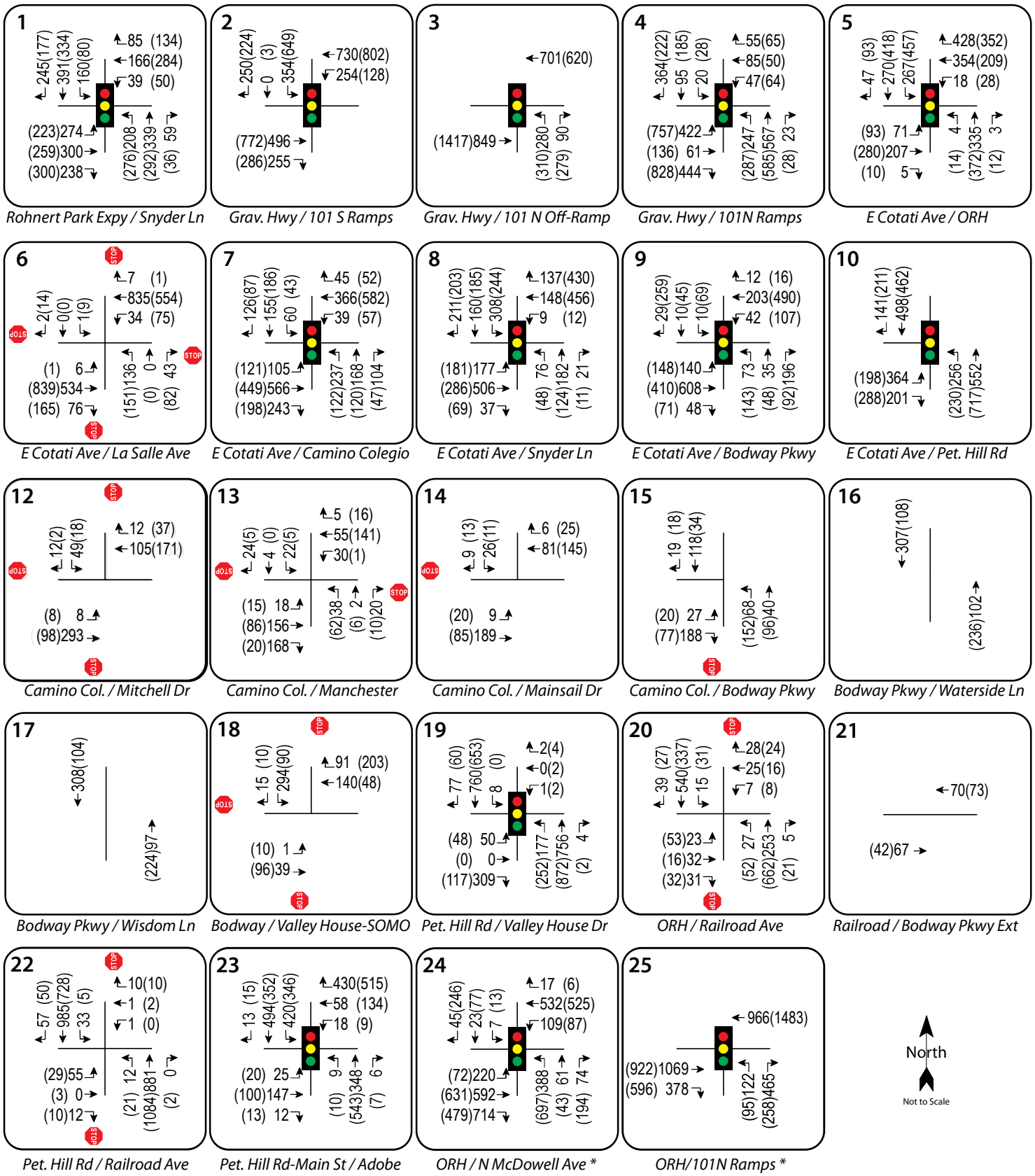
- The all-way stop-controlled intersection at East Cotati Avenue/La Salle Avenue in Cotati is operating unacceptably at LOS E during both the a.m. and p.m. peak hours, exceeding Cotati's LOS D standard.

- The intersection at Old Redwood Highway/Railroad Avenue currently encounters LOS F operation on the stop-controlled eastbound Railroad Avenue approach during the p.m. peak hour, which is considered unacceptable per the County's criteria.

- The intersection at Petaluma Hill Road/Railroad Avenue currently encounters LOS F operation on the stop-controlled eastbound Railroad Avenue approach during both peak hours, which is considered unacceptable per the County's criteria

- The signalized intersection at Petaluma Hill Road-Main Street/Adobe Road in Penngrove is currently operating at LOS F during the p.m. peak hour, which exceeds the County's LOS D criteria.

A summary of the existing intersection level of service calculations is contained in Table 2, and copies of the Level of Service calculations are provided in Appendix A.



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Traffic Impact Study for SOMO Village

Figure 4 – Existing Traffic Volumes

Table 2 – Existing Peak Hour Intersection Levels of Service

Study Intersection *Approach*	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
1. Rohnert Park Expwy/Snyder Ln	25.6	C	23.5	C
2. Gravenstein Hwy/US 101 S Ramps	21.0	C	24.1	C
3. Gravenstein Hwy/US 101 N Off-ramp	13.8	B	10.6	B
4. Gravenstein Hwy/Old Redwood Hwy	23.4	C	26.7	C
5. E Cotati Ave/Old Redwood Hwy	20.7	C	41.0	D
6. E Cotati Ave/La Salle Ave	**36.2**	**E**	**45.9**	**E**
7. E Cotati Ave/Camino Colegio	28.9	C	23.1	C
8. E Cotati Ave/Snyder Ln	25.4	C	20.8	C
9. E Cotati Ave/Bodway Pkwy	16.3	B	32.3	C
10. E Cotati Ave/Petaluma Hill Rd	32.2	C	14.5	B
12. Camino Colegio/Mitchell Dr	8.1	A	7.8	A
13. Camino Colegio/Manchester Ave	3.2	A	2.8	A
Northbound Approach	*13.2*	*B*	*10.5*	*B*
Southbound Approach	*10.7*	*B*	*9.7*	*A*
14. Camino Colegio/Mainsail Dr	1.2	A	1.3	A
Southbound Approach	*9.7*	*A*	*9.7*	*A*
15. Camino Colegio/Bodway Pkwy	6.0	A	5.4	A
Eastbound Approach	*10.4*	*B*	*10.1*	*B*
16. Bodway Pkwy/Waterside Ln[2]	-	-	-	-
17. Bodway Pkwy/Wisdom Ln[2]	-	-	-	-
18. Bodway Pkwy/Valley House Dr	12.5	B	8.9	A
19. Petaluma Hill Rd/Valley House Dr	21.5	C	13.9	B
20. Old Redwood Hwy/Railroad Ave	3.8	A	7.2	A
Eastbound Approach	*27.5*	*D*	***69.8***	***F***
Westbound Approach	*19.7*	*C*	*29.6*	*D*
21. Railroad Ave/Bodway Pkwy Extension[1]	-	-	-	-
22. Petaluma Hill Rd/Railroad Ave	19.0	C	4.1	A
Eastbound Approach	***569.3***	***F***	***172.5***	***F***
Westbound Approach	*32.4*	*D*	*29.4*	*D*
23. Petaluma Hill Rd-Main St/Adobe Rd	36.7	D	**107.6**	**F**
24. Old Redwood Hwy/N McDowell Blvd	44.8	D	35.0	D
25. Old Redwood Hwy/US 101 N Ramps	7.5	A	4.2	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; [1] future intersection to be created by project; [2] side street areas still under construction and not evaluated under existing conditions; **Bold** text = deficient operation; Intersection 11 is not included as it was a previously-proposed intersection that is no longer reflected on the project site plan

Future (No Project) Conditions

Future traffic volumes for conditions without the SOMO Village project were based on data contained in the Sonoma County Transportation Authority's (SCTA) SCTM\10 travel demand model. The model's year 2040 projections include traffic growth from future development occurring throughout the region. The model includes a "financially constrained" set of future transportation improvements, meaning only transportation projects with identified funding sources are assumed to be constructed. Within the traffic analysis's study area, no new roadways or roadway extensions are included in the model. Segment volumes from the SCTA model were translated to turning movement volumes at intersections using existing traffic counts and the "Furness" procedure. This procedure is an iterative process that employs existing turn movement data, model-obtained baseline link volumes, and model-obtained future link volumes to project likely future turning movement volumes at intersections. The incremental increase in intersection turning movements projected by the model was then added to existing volumes.

The SCTA year 2040 model contains buildout land use assumptions for the SOMO Village site that are consistent with the previous Sonoma Mountain Village development plan. To update these projections to reflect the current plan's land use and jobs/housing characteristics, a new custom run of the SCTA model was prepared, replacing the original Sonoma Mountain Village projections with those proposed for SOMO Village. These volumes represent the Future plus Project condition. To then calculate traffic levels *without* any additional development on the SOMO Village site, reflecting a Future No Project condition to which the proposed project can be compared, the increment of traffic associated with the proposed new development on the SOMO site was removed using data provided by a second custom "select zone" run of the SCTA model and the project's anticipated trip generation.

The Future (No Project) scenario excludes the proposed *new* development associated with the SOMO Village project. It does include, however, the *existing* development and current traffic generated at SOMO Village. It also includes the potential traffic associated with existing space at SOMO Village that is currently vacant but could be re-occupied. The 126,971 square feet of currently-vacant space could be occupied at any time by office and light industrial-type uses that have already been approved and would be housed in buildings that already exist on the SOMO Village site and would not be directly associated with the proposed new development contemplated as the proposed project.

All future traffic volume projections were also adjusted as necessary to reflect the anticipated circulation patterns of future development in the Southeast Area Plan, located just to the east of SOMO Village. Future traffic volumes were adjusted to reflect a minimum growth of 0.5 percent per year, which translates to a minimum growth factor of 1.11 when compounded to the year 2040, on any turning movements where the SCTA model's projections resulted in growth that was less than that amount.

Under Future (No Project) conditions, the following ten study intersections are projected to operate at unacceptable levels per the criteria applied by each location's controlling jurisdiction, if the current intersection configurations remain unchanged.

- East Cotati Avenue/Old Redwood Highway (#5) in Cotati is projected to operate at LOS F during the p.m. peak hour, exceeding Cotati's LOS D standard.

- East Cotati Avenue/La Salle Avenue (#6) in Cotati is projected to operate at LOS F during both the a.m. and p.m. peak hours, exceeding Cotati's LOS D standard.

- East Cotati Avenue/Camino Colegio (#7) is projected to operate at LOS D during both peak hours, exceeding Rohnert Park's LOS C standard.

- East Cotati Avenue/Snyder Lane (#8) is projected to operate at LOS D during the a.m. peak hour, exceeding Rohnert Park's LOS C standard.

- East Cotati Avenue/Bodway Parkway (#9) is projected to operate at LOS D during the p.m. peak hour, exceeding Rohnert Park's LOS C standard.

- East Cotati Avenue/Petaluma Hill Road (#10) is projected to operate at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour, both of which exceed the County of Sonoma's LOS D criteria.

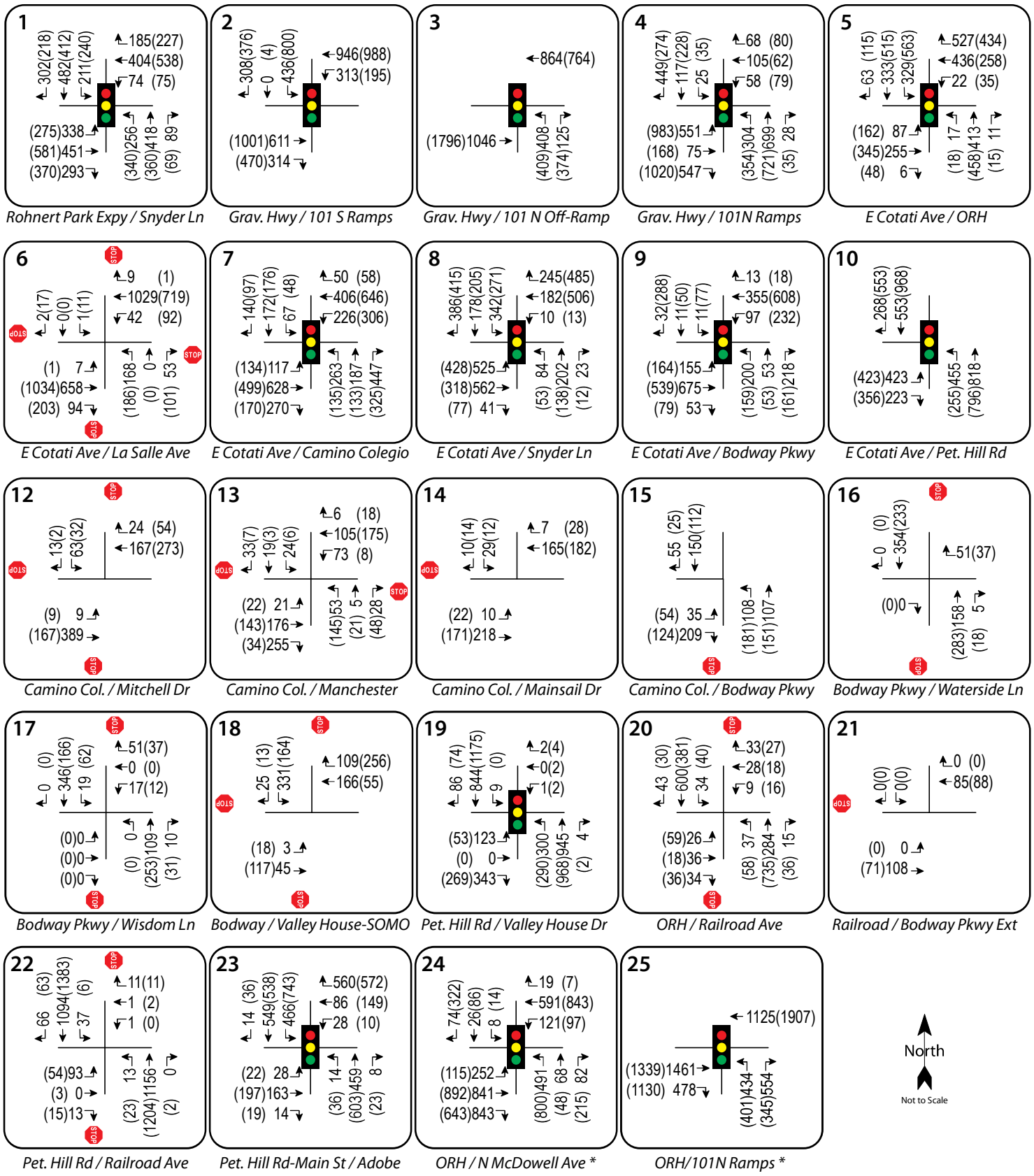
- Petaluma Hill Road/Valley House Drive (#19) is projected to operate at LOS E during the p.m. peak hour, exceeding the County of Sonoma's LOS D standard.

- Old Redwood Highway/Railroad Avenue (#20) is projected to operate at LOS E on the eastbound approach during the a.m. peak hour and LOS F on the eastbound and westbound approaches during the p.m. peak hour, which exceeds the County of Sonoma's LOS D standard.

- Petaluma Hill Road/Railroad Avenue (#22) is projected to operate at LOS F overall and on both the eastbound and westbound approaches during the a.m. and p.m. peak hours, exceeding the County of Sonoma's LOS D standard.

- Petaluma Hill Road-Main Street/Adobe Road (#23) in Penngrove is projected to operate at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour, which exceeds the County's LOS D criteria.

Future volumes are shown in Figure 5 and the operational results are summarized in Table 3.



* Old Redwood Highway considered to run east-west at these intersections

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Traffic Impact Study for SOMO Village

Figure 5 – Future (No Project) Traffic Volumes

Table 3 – Future (No Project) Peak Hour Intersection Levels of Service

Study Intersection *Approach*	AM Peak		PM Peak	
	Delay	**LOS**	**Delay**	**LOS**
1. Rohnert Park Expwy/Snyder Ln	30.9	C	28.1	C
2. Gravenstein Hwy/US 101 S Ramps	21.8	C	29.7	C
3. Gravenstein Hwy/US 101 N Off-ramp	16.4	B	11.9	B
4. Gravenstein Hwy/Old Redwood Hwy	37.6	D	46.1	D
5. E Cotati Ave/Old Redwood Hwy	34.5	C	**85.1**	**F**
6. E Cotati Ave/La Salle Ave	**88.6**	**F**	**119.1**	**F**
7. E Cotati Ave/Camino Colegio	**50.5**	**D**	**36.4**	**D**
8. E Cotati Ave/Snyder Ln	**46.1**	**D**	33.9	C
9. E Cotati Ave/Bodway Pkwy	19.2	B	**36.4**	**D**
10. E Cotati Ave/Petaluma Hill Rd	**67.3**	**E**	**91.4**	**F**
12. Camino Colegio/Mitchell Dr	8.9	A	8.7	A
13. Camino Colegio/Manchester Ave	4.5	A	4.9	A
Northbound Approach	*18.9*	*C*	*12.6*	*B*
Southbound Approach	*15.3*	*C*	*11.0*	*B*
14. Camino Colegio/Mainsail Dr	1.1	A	1.0	A
Southbound Approach	*10.5*	*B*	*10.2*	*B*
15. Camino Colegio/Bodway Pkwy	5.5	A	5.8	A
Eastbound Approach	*11.4*	*B*	*12.9*	*B*
16. Bodway Pkwy/Waterside Ln	0.9	A	0.7	A
Westbound Approach	*9.5*	*A*	*10.4*	*B*
17. Bodway Pkwy/Wisdom Ln	1.5	A	1.9	A
Westbound Approach	*10.1*	*B*	*11.1*	*B*
18. Bodway Pkwy/Valley House Dr	14.4	B	10.3	B
19. Petaluma Hill Rd/Valley House Dr	40.4	D	**78.1**	**E**
20. Old Redwood Hwy/Railroad Ave	5.9	A	17.1	C
Eastbound Approach	***45.8***	***E***	***182.8***	***F***
Westbound Approach	*27.4*	*D*	***53.1***	***F***
21. Railroad Ave/Bodway Pkwy Extension[1]	-	-	-	-
22. Petaluma Hill Rd/Railroad Ave	**119.6**	**F**	65.5	F
Eastbound Approach	***2792***	***F***	***2500***	***F***
Westbound Approach	*56.1*	*F*[2]	*62.4*	*F*[2]
23. Petaluma Hill Rd-Main St/Adobe Rd	**79.4**	**E**	**172.0**	**F**
24. Old Redwood Hwy/N McDowell Blvd	47.5	D	44.5	D
25. Old Redwood Hwy/US 101 N Ramps	9.9	A	8.5	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; [1] future intersection to be created by project; [2] approach volume <30 vehicles so LOS criteria do not apply; **Bold** text = deficient operation

Project Description

Land Use

The proposed project site is in the southeast region of Rohnert Park and encompasses three parcels totaling approximately 175 acres. The site contains existing uses within approximately 700,000 square feet of building space formerly occupied by Agilent Technologies, ranging from light industrial uses to a private high school. The project would maintain these existing uses. The proposed new uses would be built on land that is generally undeveloped or occupied by surface parking lots. The project has similarities to the previous Sonoma Mountain Village project already approved for the site, as well as the broad uses and circulation network identified for the area in the City's General Plan.

Residential uses are proposed to include 474 single family homes, 837 apartment units (including 165 in mixed-use areas), 383 townhomes, and 56 accessory dwelling units (ADU). Nonresidential uses are proposed to include 78,000 square feet of retail, 20,000 square feet of restaurant space, 5,000 square feet of grocery use, 10,000 square feet of childcare space, and 10,000 square feet of health club space.

For the purposes of the traffic analysis, the proposed SOMO Village project has been broken down into two phases, with Phase 1 representing the areas north of SOMO Avenue and Phase 2 representing the areas to the south. Phase 1 includes 288 single-family homes, 507 apartment units, 85 townhomes, 56 ADUs, and all of the project's non-residential uses. Phase 2 consists of 186 single-family homes, 330 apartments, and 298 townhomes. Completion of both phases is referred to in this report as Project Buildout.

The project's site plan is shown in Figure 6.

Circulation

The project site plan depicts an internal grid street network including extensions of several streets that currently exist only to the north of Camino Colegio and east of Bodway Parkway. North-south street extensions include Mitchell Drive, Manchester Avenue, and Mainsail Drive. East-west street extensions include Waterside Lane and Wisdom Lane, as well as a formalized public street extension of Valley House Drive that would be called SOMO Avenue. SOMO Avenue would be the primary east-west street traversing the central portion of the project site, while B Street would be the primary north-south street.

Camino Colegio

The site plan depicts full-access intersections along Camino Colegio at Mitchell Drive, Manchester Avenue, and Mainsail Drive. The existing median breaks on Camino Colegio would be maintained in their current configuration. The site plan does not depict travel lane and turn pocket configurations, though other than creating new single-lane approaches to the three intersections, no other modifications appear to be proposed.

Bodway Parkway

The site plan depicts the raised median at Waterside Lane to be maintained, effectively limiting the intersection to right-turns in and out, similar to what exists on the east side of Bodway Parkway. The plan depicts a similar configuration at Wisdom Lane, but because this intersection already has a median break allowing left-turns, the current full-access configuration was assumed to be maintained. The site plan identifies a single-lane roundabout at the Bodway Parkway/Valley House Drive-SOMO Avenue intersection, replacing the existing all-way stop-controlled intersection. Several new residential street full-access intersections are shown to the south of SOMO Avenue. Finally, the plan includes the extension of Bodway Parkway to Railroad Avenue, consistent with the City's General Plan.

FIGURE 3.2.14
FINAL ILLUSTRATIVE PLAN DIAGRAM
SOMO VILLAGE

Source: SOMO Living, LLC 5/19

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Traffic Impact Study for SOMO Village
Figure 6 – Site Plan

Trip Generation

The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10th Edition, 2017. Published rates for the following land uses were applied in developing trip generation rates:

- Fire Station (ITE LU #170)
- Single Family Detached Housing (ITE LU #210)
- Multifamily Housing (Low-Rise) (ITE LU #220)
- Multifamily Housing (Mid-Rise) (ITE LU #221)
- Public Park (ITE LU#411)
- Health/Fitness Club (ITE LU #492)
- Day Care Center (ITE LU #565)
- Shopping Center (ITE LU #820)
- Supermarket (ITE LU #850)
- Quality Restaurant (ITE LU#931)

It should be noted that the trip generation for the fire station is based on ITE's "Utility" land use category with a 6,500 square foot size based on the applicant's estimate; the actual fire station size will be determined by the City during design of the facility. Additionally, because daily rates are not available for the Health/Fitness Club land use, a custom daily rate was developed by multiplying the p.m. peak hour trip rate for this use by an equivalent factor of p.m.-to-daily trips from the related ITE Recreational Community Center land use.

ITE considers "Multifamily" housing to reflect apartment, townhome, and condominium-type uses. Multifamily housing is classified as Low-Rise if it is one to two stories, and Mid-Rise if it is three to ten stories. Based on information contained in the project description and site plan, the proposed townhome and accessory dwelling unit (ADU) residential uses are determined to be best characterized by the Low-Rise category while the apartment and mixed-use residential units are best characterized by the Mid-Rise category. The remaining residential units would be single-family detached homes and cottages and are included in the Single Family Detached Housing category.

Adjustments for Non-Auto Modes

Internal trips occur at mixed-use developments, and in the case of the SOMO Village project would consist of residents and employees patronizing the project's retail and restaurant uses, and residents who also work within the development. Such trips are typically made by walking or biking rather than driving. The number of internal and external trips was calculated based upon data from the publication *NCHRP Report 684: Enhancing Internal Capture Estimation for Mixed-Use Developments*, Transportation Research Board (TRB), 2011; the methodologies have since been incorporated into the ITE *Trip Generation Manual*. The methodology uses the standard ITE trip generation estimates for each land use, determines the potential for internally captured trips onsite, and produces an estimate of the adjusted number of external vehicle trips. The methodology also considers mode share, which was conservatively assumed to include three percent of trips made by bus and rail. For the SOMO Village project, the methodology estimates that approximately 16 percent of a.m. peak hour trips and 22 percent of p.m. peak hour trips would be internally captured. Copies of the NCHRP 684 methodology worksheets are contained in Appendix B.

Additional adjustments for internally-captured trips were made for the proposed health club and day care center, neither of which are included in the NCHRP methodology. Many users of these facilities are anticipated to be by SOMO Village residents and employees who would not generate trips outside of the development when traveling to and from the health club and day care uses. Internal capture factors of 25 percent and 50 percent were applied to the projected health club and day care trips, respectively.

Pass-by Trips

Some portion of traffic associated with retail uses is typically drawn from existing traffic on nearby streets. These vehicle trips are not considered "new," but are instead comprised of drivers who are already driving on the street system and choose to make an interim stop and are referred to as "pass-by." The percentage of these pass-by trips

was developed based on information provided in the *Trip Generation Manual*. This reference includes pass-by data collected at numerous locations for many land uses, including an applied average of 25 percent for retail uses and 35 percent for supermarket uses. These pass-by trips would be captured from streets internal to the project site.

Total Projected Trip Generation

The expected trip generation potential for the proposed project is indicated in Table 4. In total at buildout, the project is expected to generate an average of 14,323 trips per day, including 920 trips during the a.m. peak hour and 1,288 during the p.m. peak hour. Areas of the project to the north of SOMO Avenue, referred to herein as Phase 1, are projected to generate 9,625 daily trips including 577 during the a.m. peak hour and 912 during the p.m. peak hour. The Phase 2 areas to the south of SOMO Avenue are projected to generate 4,698 daily trips including 343 during the a.m. peak hour and 376 during the p.m. peak hour.

Table 4 – Trip Generation Summary											
Land Use	**Units**	**Daily**		**AM Peak Hour**				**PM Peak Hour**			
		Rate	**Trips**	**Rate**	**Trips**	**In**	**Out**	**Rate**	**Trips**	**In**	**Out**
PHASE 1											
Single Family Homes	288 du	9.44	2,719	0.74	213	53	160	0.99	285	180	105
Multifamily Housing (Low-Rise)	85 du	7.32	1,032	0.46	65	15	50	0.56	79	50	29
Multifamily Housing (Mid-Rise)	507 du	5.44	2,758	0.36	183	47	136	0.44	223	136	87
Shopping Center	78.0 ksf	37.75	2,945	0.94	73	45	28	3.81	297	143	154
-25% pass-by			*-736*		*-18*	*-11*	*-7*		*-74*	*-36*	*-38*
Supermarket	5.0 ksf	106.78	534	3.82	19	11	8	9.24	46	24	22
-35% pass-by			*-187*		*-7*	*-4*	*-3*		*-16*	*-8*	*-8*
Restaurant	20.0 ksf	83.84	1,677	0.73	15	11	4	7.80	156	105	51
Health Club	10.0 ksf	43.15	432	1.31	13	7	6	3.45	35	20	15
Day Care Center	10.0 ksf	47.62	476	11.00	110	58	52	11.12	111	52	59
Fire Station	6.5 ksf	13.24	86	2.31	15	12	3	2.27	15	3	12
Public Park	9.81 ac	0.78	8	0.02	0	0	0	0.11	1	1	0
SUB-TOTAL			11,744		681	244	437		1,158	670	488
Internal Capture Trips			*-2,119*[1]		*-104*	*-43*	*-61*		*-246*	*-130*	*-116*
PHASE 1 TRIPS			9,625		577	201	376		912	540	372
PHASE 2											
Single Family Homes	186 du	9.44	1,756	0.74	138	34	104	0.99	184	116	68
Multifamily Housing (Low-Rise)	298 du	7.32	2,181	0.46	137	32	105	0.56	167	105	62
Multifamily Housing (Mid-Rise)	330 du	5.44	1,795	0.36	119	31	88	0.44	145	89	56
SUB-TOTAL			5,732		394	97	297		496	310	186
Internal Capture Trips			*-1,034*[1]		*-51*	*-21*	*-30*		*-120*	*-63*	*-57*
PHASE 2 TRIPS			4,698		343	76	267		376	247	129
PROJECT BUILDOUT TRIPS (PHASES 1 & 2)			**14,323**		**920**	**277**	**643**		**1,288**	**787**	**501**

Notes: ksf=1,000 square feet; ac = acres; du = Dwelling Unit; [1] Daily internal trips estimated using the averages percentage of a.m. and p.m. peak hour internal trips

Trip Generation Comparison to Sonoma Mountain Village EIR

The SOMO Village project as proposed would maintain the current uses that exist on the site. The effective trip generation associated with these uses was determined based on 72-hour and peak hour traffic counts obtained at the site's existing two access points, located at the Camino Colegio/Manchester Avenue and Bodway Parkway/ Valley House Drive intersections. Additionally, the site has 126,971 square feet of space that is currently vacant but that could be re-occupied by office or light industrial type uses at any time. The sum of existing trips generated

at the site, trips associated with vacant space that could be reoccupied, and trips associated with buildout of the proposed project reflects the site's total potential trip generation and is summarized in Table 5.

Table 5 – Total Site Trip Generation Including Existing and Vacancy-Adjustment Trips

	Daily	AM Peak Hour			PM Peak Hour		
	Trips	Trips	In	Out	Trips	In	Out
Existing Trips[1]	2,016	469	312	157	234	58	177
Vacancy Adjustment Trips[2]	1,235	147	126	21	146	23	123
Net New SOMO Village Trips	14,323	920	277	643	1,288	787	501
TOTAL SITE TRIPS	**17,574**	**1,536**	**715**	**821**	**1,668**	**868**	**801**

Notes: [1] Based on driveway counts obtained in January and March 2019; [2] trips associated with 126,791 square feet of currently-vacant space estimated using ITE "General Office" (LU #710) trip generation rates

The project evaluated in the 2009 Sonoma Mountain Village EIR included many of the same land uses as those currently proposed for SOMO Village, though the quantities of various land uses have changed and several previously-planned uses including office, hotel, and movie theater are no longer proposed. Table 3.13-10 of the Sonoma Mountain Village DEIR summarizes the project trip generation that was used in the DEIR traffic analysis. The DEIR projected a total of 20,316 daily trips including 1,266 during the a.m. peak hour and 2,018 during the p.m. peak hour. These DEIR projections exceed the anticipated trip generation resulting from buildout of the SOMO Village site as currently proposed daily and during the p.m. peak hour but are less than what buildout of the site is now anticipated to generate during the a.m. peak hour. Stated another way, total buildout of the proposed SOMO Village site is now anticipated to result in a higher a.m. peak hour trip generation than assumed in the Sonoma Mountain Village DEIR. Buildout of the site with the current project is projected to result in 270 more a.m. peak hour trips than were analyzed in the DEIR, but 2,742 fewer daily trips and 350 fewer p.m. peak hour trips.

The comparison between the Sonoma Mountain Village DEIR applied trip generation and that associated with buildout of the currently-proposed SOMO Village project site is shown in Table 6.

Table 6 – Total Site Trip Generation Comparison to Sonoma Mountain Village DEIR

	Daily	AM Peak Hour			PM Peak Hour		
	Trips	Trips	In	Out	Trips	In	Out
Sonoma Mountain Village DEIR (prior project)	20,316	1,266	625	641	2,018	1,007	1,011
SOMO Village Total Site Trips[1]	17,574	1,536	715	821	1,668	868	801
Net Difference	**-2,742**	**270**	**90**	**180**	**- 350**	**- 139**	**- 210**

Notes: [1] Includes trips associated with the proposed project in addition to existing and vacancy-adjustment trips associated with existing development on the site

Trip Distribution

The pattern used to allocate new project trips to the street network was based on "select zone" plots of project-generated traffic as extracted from the Sonoma County travel demand model, refined in consideration of local traffic patterns and the street configuration shown on the proposed site plan as well as typical peak hour travel times projected by online mapping tools. The applied distribution assumptions are shown for residential and non-residential uses in Table 7.

Table 7 – Trip Distribution Assumptions		
Route	**Residential Uses**	**Nonresidential Uses**
US 101 N – via Gravenstein Hwy Interchange (Cotati)	20%	2%
US 101 S – via Old Redwood Hwy Interchange (Petaluma)	13%	0%
Petaluma Hill Rd – north of E Cotati Ave	11%	4%
Adobe Rd	11%	3%
Rohnert Park Expwy – west of Snyder Ln	7%	16%
Snyder Ln – north of Rohnert Park Expwy	6%	6%
Snyder Ln - E Cotati Ave to Snyder Ln including Southwest Blvd	5%	16%
Sonoma State University	5%	13%
Gravenstein Hwy – west of US 101	4%	1%
E Cotati Ave – La Salle Ave to Camino Colegio including B and L Sections	4%	14%
W Sierra Ave – west of Old Redwood Hwy	3%	5%
M Section Neighborhood – between E Cotati Ave and Camino Colegio	3%	12%
Railroad Ave – west of Old Redwood Hwy	3%	3%
McDowell Blvd – south of Old Redwood Hwy	2%	0%
Petaluma Blvd – west of US 101	2%	0%
Camino Colegio – north of E Cotati Ave	1%	5%
TOTAL	**100%**	**100%**

Intersection Operation

Effects of Bodway Parkway Extension

The City's planned future circulation network as shown in the General Plan includes an extension of Bodway Parkway southward from Valley House Drive to Railroad Avenue. This additional linkage in the regional roadway network will help to disperse traffic volumes by allowing direct project vehicular access to Railroad Avenue without needing to pass through the Petaluma Hill Road/Valley House Drive intersection. The Bodway Parkway extension would border the Phase 2 southern portion of the SOMO Village project and is shown to be completed in the tentative map and site plan upon buildout of the site. Accordingly, scenarios evaluating full buildout of the SOMO Village project include the effects of the Bodway Parkway extension.

Targeted testing was used to assess the need to extend Bodway Parkway to Railroad Avenue even if only Phase 1 of the SOMO Village project is completed. It was determined that under Existing plus Project conditions with only Phase 1 completed, the Bodway Parkway extension is not required to maintain acceptable operation at the critical Petaluma Hill Road/Valley House Drive intersection. The Existing plus Project Phase 1 analysis scenarios therefore assume no extension of Bodway Parkway. Under Future plus Project conditions with only Phase 1, however, the project would be unable to mitigate operation at the Petaluma Hill Road/Valley House Drive intersection to "no project" levels (thereby reducing its impact to a less than significant level) without the Bodway Parkway extension. This is because the extension of Bodway Parkway to Railroad Avenue will reduce project-generated traffic passing through the Petaluma Hill Road/Valley House Drive intersection. Based on this assessment, the Bodway Parkway extension was deemed to be necessary under Future Conditions with SOMO Village both with Phase 1 and with buildout of the project and is included in both the Future plus Phase 1 and Future plus Project Buildout scenarios.

As noted above, the Bodway Parkway Extension is not anticipated to be needed to support the near-term (Existing plus Project) traffic associated with Phase 1 of SOMO Village. Further review suggests that near-term buildout of the Southeast Specific Plan area (in addition to SOMO Phase 1) would also not necessitate the new roadway. While the actual timing of when the extension will be needed is uncertain and subject to regional traffic growth trends, a reasonable estimate may be in the 10- to 15-year range, or once SOMO Village develops southward beyond Phase 1.

Finding – The estimated timeline by which the Bodway Parkway extension should be completed is approximately 10 to 15 years (by 2030 to 2035), or upon development of the southern portion of SOMO Village, whichever occurs first.

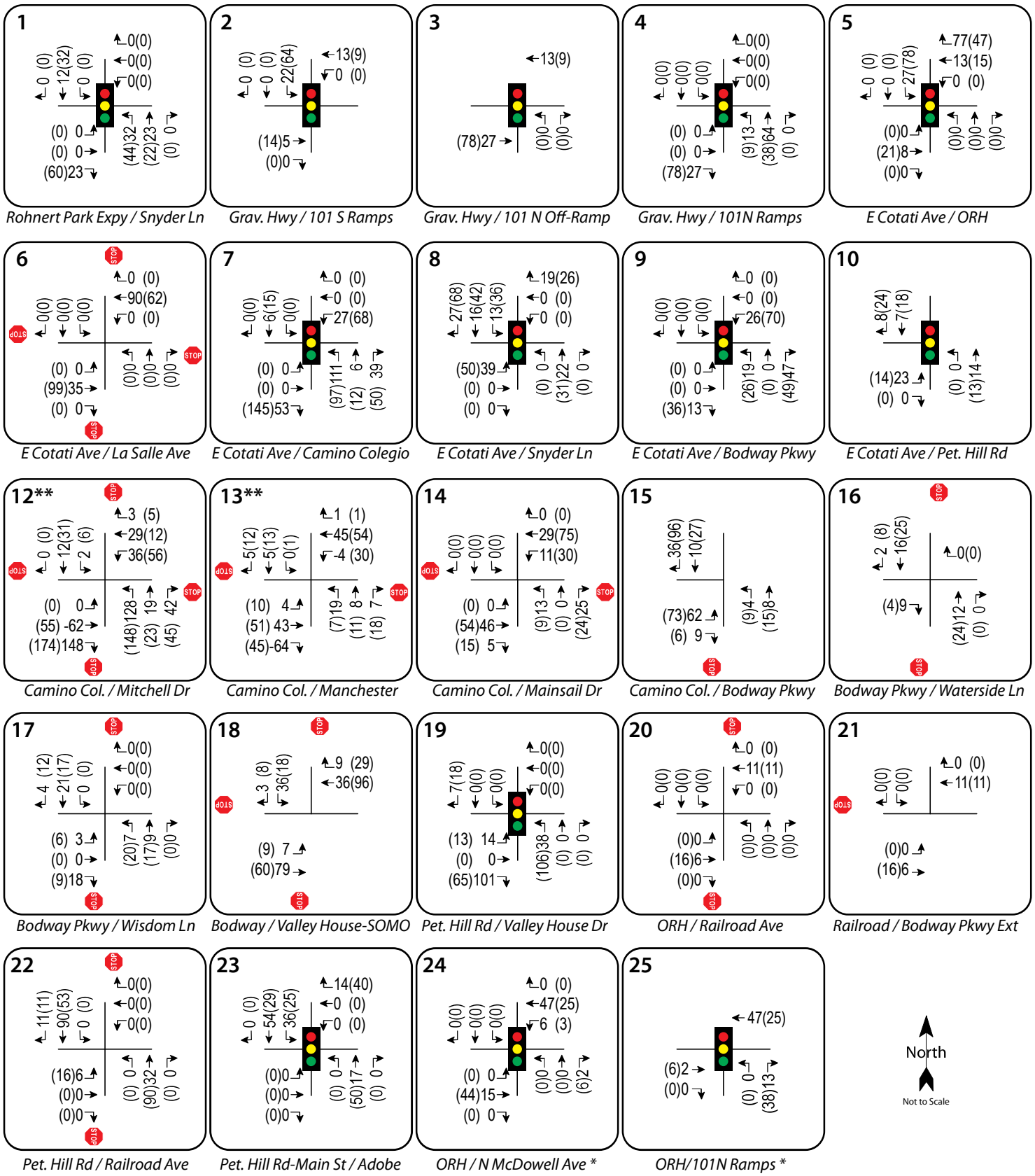
Existing plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, 18 of the 24 study intersections are expected to operate acceptably. Buildout of the project is anticipated to result in traffic impacts to six intersections including East Cotati Avenue/Old Redwood Highway, East Cotati Avenue/La Salle Avenue, East Cotati Avenue/Camino Colegio, Old Redwood Highway/Railroad Avenue, Petaluma Hill Road/Railroad Avenue, and Petaluma Hill Road-Main Street/Adobe Road. With completion of only Phase 1 of the SOMO Village project, these same six intersections would be impacted. The project's effects on LOS and delay would be considered significant under the criteria applied by each intersection's controlling jurisdiction with either buildout of the project or completion of only Phase 1. Additional details regarding the project's impacts to intersection operation, including potential measures to alleviate the impacts, are provided below.

Finding – Under Existing plus Project conditions, with either buildout of the project or completion of only Phase 1, six of the 24 study intersections are projected to operate below adopted LOS standards and experience a significant impact due to adding project-generated traffic.

The project traffic volumes are shown in Figures 7 through 9. Figure 7 shows the project traffic volumes associated with only phase 1 of development, without the Bodway Parkway extension, and Figure 8 shows the phase 1 volumes with the Bodway Parkway extension. Figure 9 shows the project buildout volumes (including the Bodway Parkway Extension). Exhibits showing Existing plus Project Phase 1 and Existing plus Project Buildout traffic volumes are shown in Figures 10 and 11, respectively.

The Existing plus Project levels of service are summarized in Table 8 for both Phase 1 and Project Buildout conditions.



LEGEND

xx AM Peak Hour Volume

(xx) PM Peak Hour Volume

* Old Redwood Highway considered to run east-west at these intersections

** Negative volumes reflect redistribution of existing site trips to the proposed street network

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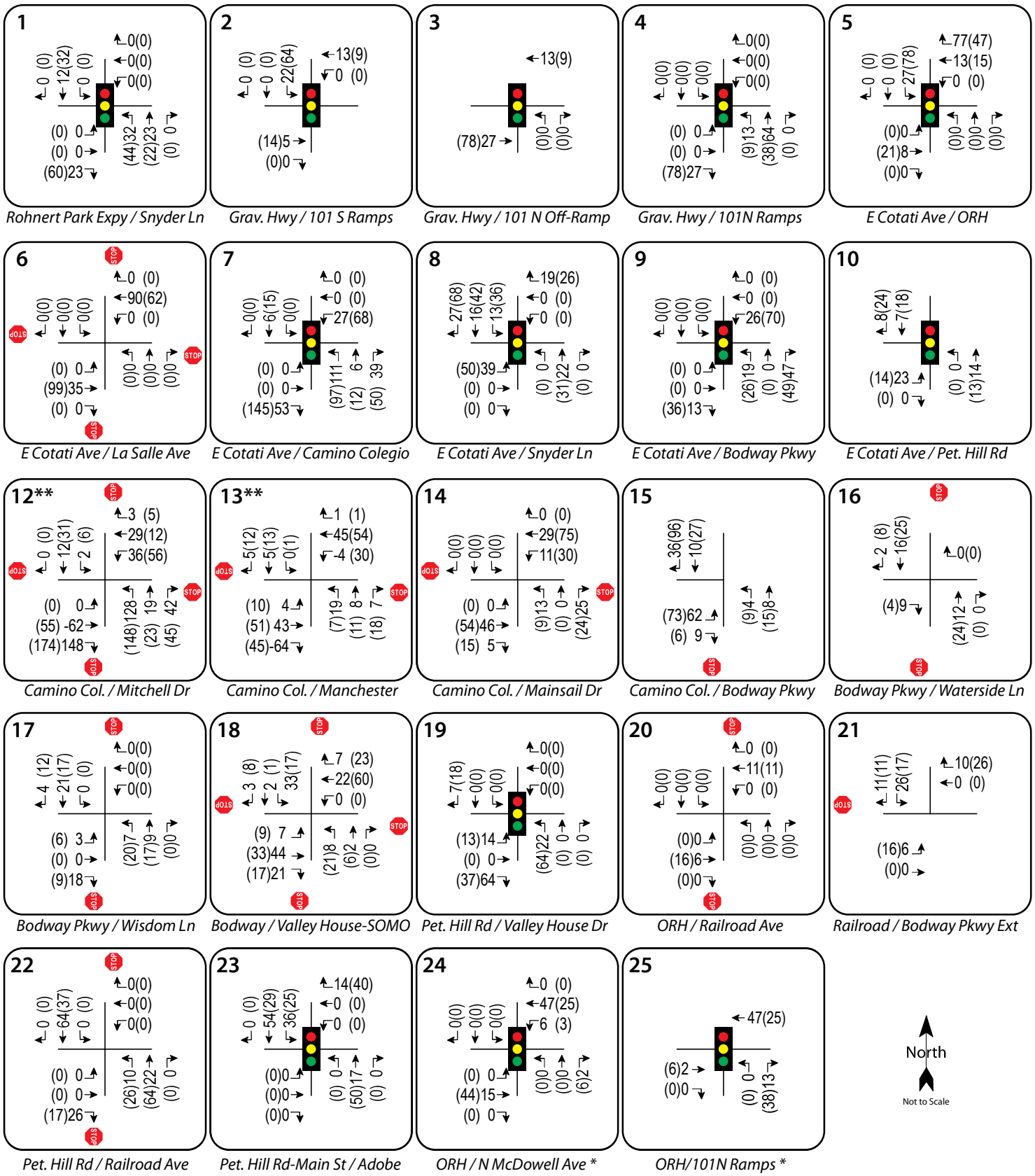
Traffic Impact Study for SOMO Village

Figure 7 – Project Phase 1 Traffic Volumes without Bodway Extension



LEGEND

xx AM Peak Hour Volume

(xx) PM Peak Hour Volume

* Old Redwood Highway considered to run east-west at these intersections

** Negative volumes reflect redistribution of existing site trips to the proposed street network

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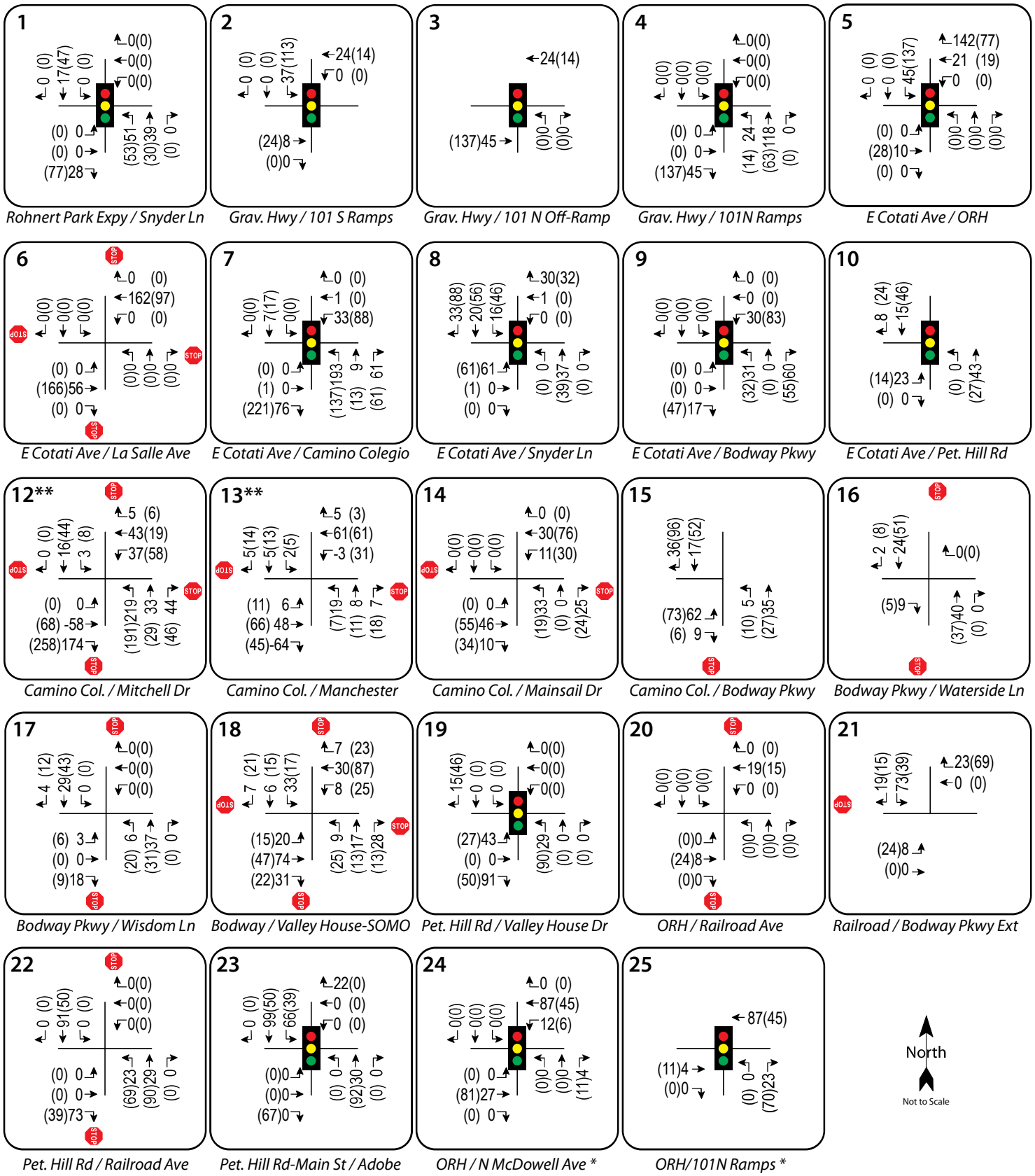
Traffic Impact Study for SOMO Village

Figure 8 – Project Phase 1 Traffic Volumes with Future Bodway Extension



LEGEND

xx AM Peak Hour Volume

(xx) PM Peak Hour Volume

* Old Redwood Highway considered to run east-west at these intersections

** Negative volumes reflect redistribution of existing site trips to the proposed street network

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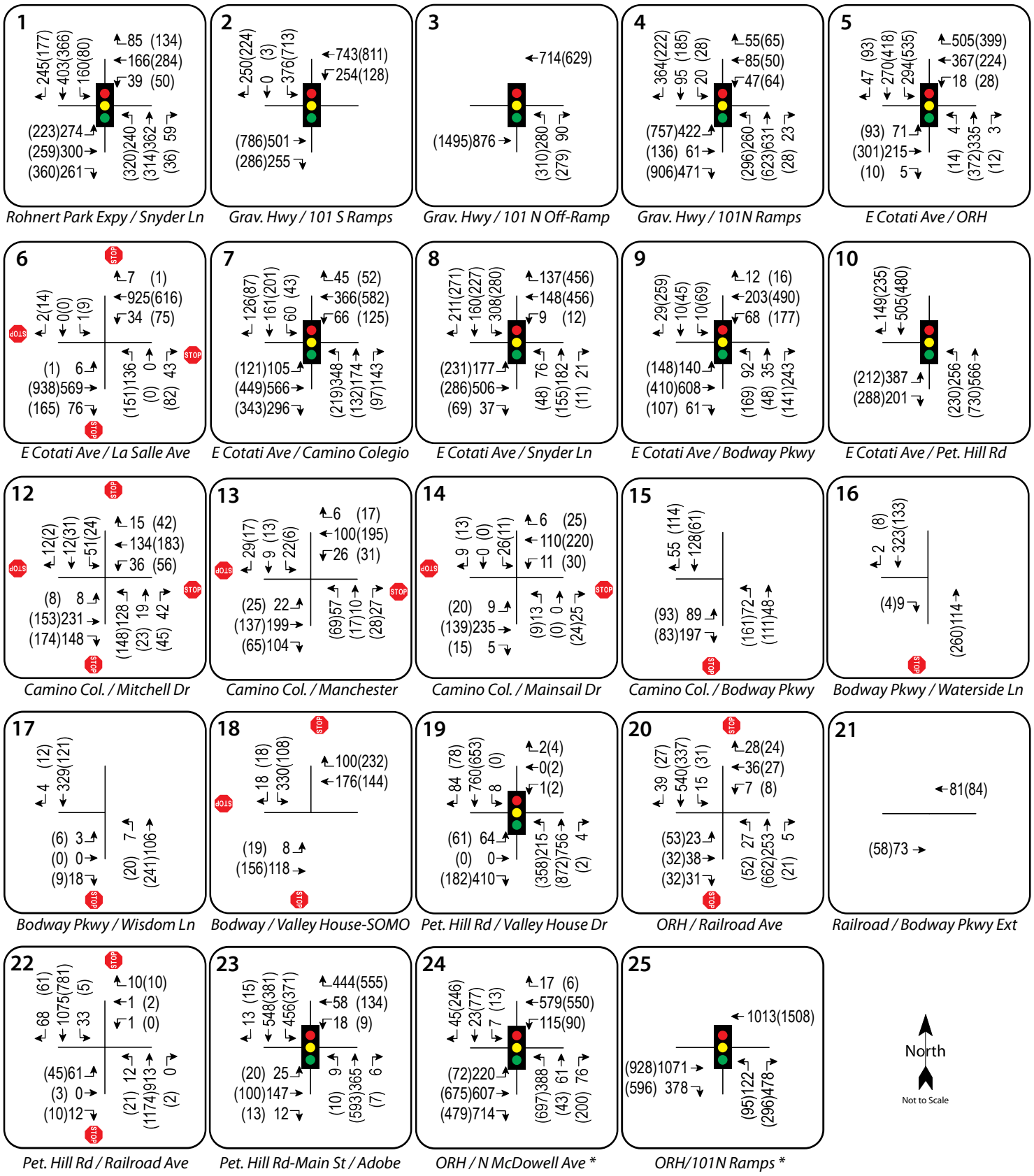
Traffic Impact Study for SOMO Village

Figure 9 – Project Buildout Traffic Volumes



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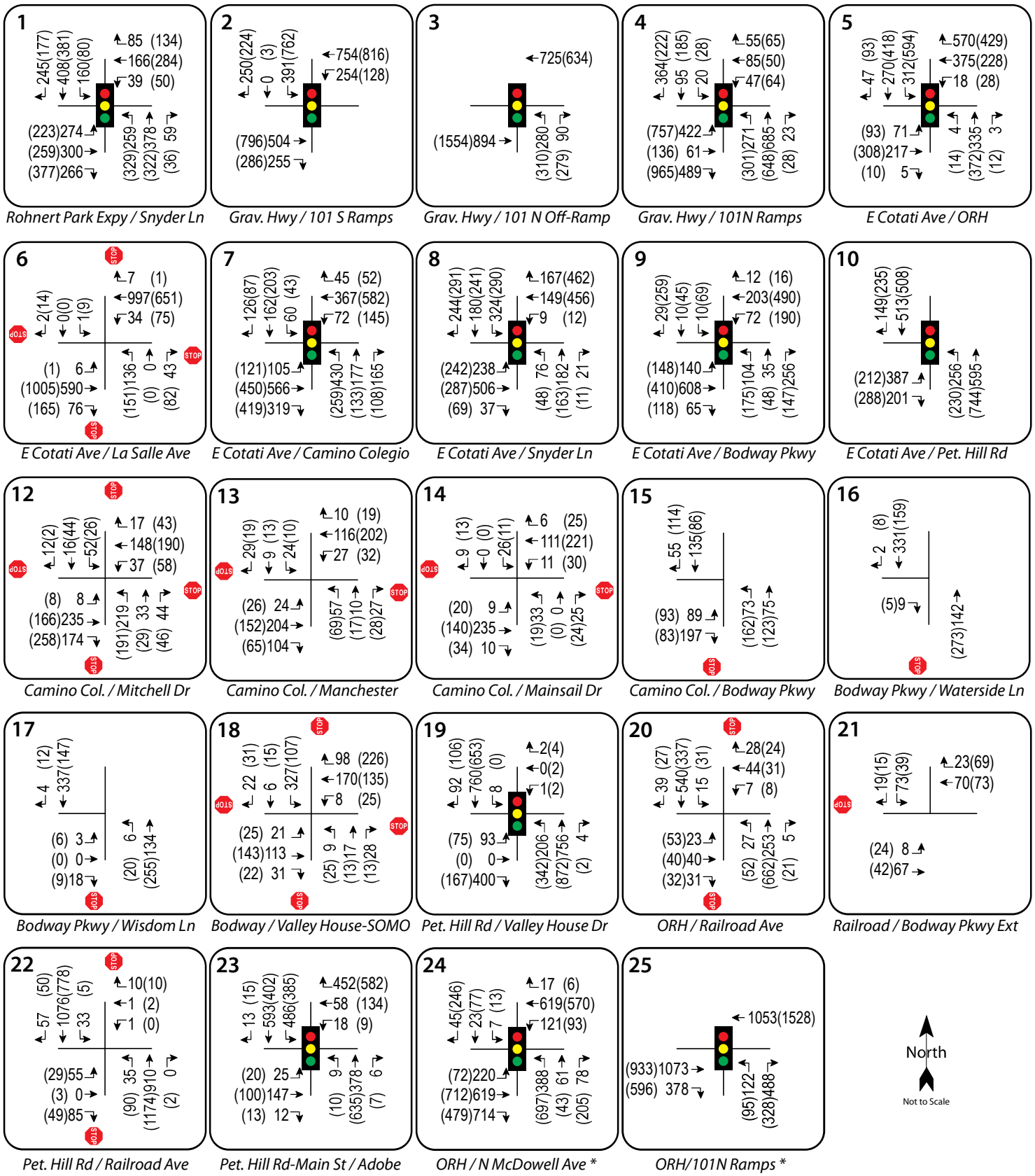
Traffic Impact Study for SOMO Village

Figure 10 – Existing plus Project Phase 1 Traffic Volumes



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Traffic Impact Study for SOMO Village

Figure 11 – Existing plus Project Buildout Traffic Volumes

Table 8 - Existing and Existing plus Project Peak Hour Intersection Levels of Service

Study Intersection *Approach*	Existing Conditions				Existing plus Phase 1				Existing plus Project Buildout			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Rohnert Park Expwy/Snyder Ln	25.6	C	23.5	C	25.7	C	24.7	C	25.8	C	25.2	C
2. Gravenstein Hwy/US 101 S Ramps	21.0	C	24.1	C	21.1	C	24.7	C	21.1	C	25.2	C
3. Gravenstein Hwy/US 101 N Off-ramp	13.8	B	10.6	B	13.8	B	10.3	B	13.7	B	10.1	B
4. Gravenstein Hwy/Old Redwood Hwy	23.4	C	26.7	C	24.9	C	27.7	C	26.5	C	28.4	C
5. E Cotati Ave/Old Redwood Hwy	20.7	C	41.0	D	25.2	C	**60.4**	**E**	31.6	C	**77.8**	**E**
Mitigated: modify WB striping/phasing	-	-	-	-	18.6	B	34.2	C	19.7	B	45.0	D
6. E Cotati Ave/La Salle Ave	**36.2**	**E**	**45.9**	**E**	**52.8**	**F**	**69.9**	**F**	**67.9**	**F**	**87.5**	**F**
Mitigated: signalize	-	-	-	-	6.2	A	6.7	A	6.2	A	6.8	A
7. E Cotati Ave/Camino Colegio	28.9	C	23.1	C	**47.1**	**D**	31.6	C	**73.1**	**E**	**39.5**	**D**
Mitigated: modify signal phasing	-	-	-	-	28.1	C	26.3	C	34.9	C	30.3	C
8. E Cotati Ave/Snyder Ln	25.4	C	20.8	C	26.7	C	21.9	C	27.9	C	22.5	C
9. E Cotati Ave/Bodway Pkwy	16.3	B	32.3	C	17.8	B	34.2	C	18.0	B	35.0	C
10. E Cotati Ave/Petaluma Hill Rd	32.2	C	14.5	B	35.9	D	15.5	B	36.7	D	16.6	B
12. Camino Colegio/Mitchell Dr	8.1	A	7.8	A	11.8	B	12.7	B	16.3	C	16.8	C
13. Camino Colegio/Manchester Ave	3.2	A	2.8	A	4.2	A	4.0	A	4.2	A	4.0	A
Northbound Approach	*13.2*	*B*	*10.5*	*B*	*15.8*	*C*	*14.0*	*B*	*16.3*	*C*	*14.4*	*B*
Southbound Approach	*10.7*	*B*	*9.7*	*A*	*11.8*	*B*	*11.8*	*B*	*12.2*	*B*	*12.2*	*B*
14. Camino Colegio/Mainsail Dr	1.2	A	1.3	A	2.1	A	2.0	A	2.5	A	2.1	A
Northbound Approach	-	-	-	-	*10.1*	*B*	*9.9*	*A*	*11.0*	*B*	*10.7*	*B*
Southbound Approach	*9.7*	*A*	*9.7*	*A*	*10.7*	*B*	*11.1*	*B*	*10.7*	*B*	*11.1*	*B*
15. Camino Colegio/Bodway Pkwy	6.0	A	5.4	A	6.4	B	6.2	A	6.2	B	6.1	A
Eastbound Approach	*10.4*	*B*	*10.1*	*B*	*11.3*	*B*	*14.6*	*B*	*11.4*	*B*	*15.4*	*C*
16. Bodway Pkwy/Waterside Ln	-	-	-	-	0.2	A	0.1	A	0.2	A	0.1	A
Eastbound Approach	-	-	-	-	*10.4*	*B*	*9.1*	*A*	*10.5*	*B*	*9.2*	*A*

Table 8 - Existing and Existing plus Project Peak Hour Intersection Levels of Service

Study Intersection *Approach*	Existing Conditions				Existing plus Phase 1				Existing plus Project Buildout			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
17. Bodway Pkwy/Wisdom Ln	-	-	-	-	0.6	A	0.8	A	0.5	A	0.7	A
Eastbound Approach	-	-	-	-	*10.9*	*B*	*10.4*	*B*	*11.1*	*B*	*10.7*	*B*
18. Bodway Pkwy/Valley House Dr-SOMO Ave[1]	12.5	B	8.9	A	7.7	A	6.5	A	8.1	A	7.0	A
19. Petaluma Hill Rd/Valley House Dr	21.5	C	13.9	B	27.4	C	18.9	B	25.9	C	18.1	B
20. Old Redwood Hwy/Railroad Ave	3.8	A	7.2	A	4.5	A	11.4	B	4.9	A	14.1	B
Eastbound Approach	*27.5*	*D*	***69.8***	***F***	*29.5*	*D*	***103.1***	***F***	*30.7*	*D*	***123.3***	***F***
Westbound Approach	*19.7*	*C*	*29.6*	*D*	*21.9*	*C*	***35.4***	***E***	*23.4*	*C*	***38.2***	***E***
Mitigated: add eastbound left-turn and	-	-	-	-	3.8	A	6.6	A	4.2	A	7.3	A
Eastbound Approach	-	-	-	-	*23.7*	*C*	*51.8*	*F*[2]	*24.2*	*C*	*54.1*	*F*[2]
Westbound Approach	-	-	-	-	*20.5*	*C*	*31.7*	*D*	*21.8*	*C*	*34.2*	*D*
21. Railroad Ave/Bodway Pkwy Extension	-	-	-	-	[3]	-	[3]	-	3.8	A	2.7	A
Southbound Approach	-	-	-	-	-	-	-	-	*10.0*	*B*	*9.9*	*A*
22. Petaluma Hill Rd/Railroad Ave	19.0	C	4.1	A	29.6	D	13.1	C	**58.2**	**F**	14.8	C
Eastbound Approach	***569.3***	***F***	***172.5***	***F***	***874.9***	***F***	***463.1***	***F***	***931.6***	***F***	***383.3***	***F***
Westbound Approach	*32.4*	*D*	*29.4*	*D*	*37.9*	*E*[4]	*34.6*	*D*	*49.8*	*F*[4]	*39.7*	*E*[4]
Mitigated: signalize, add EB RT lane	-	-	-	-	14.0	B	16.7	B	17.5	B	19.3	B
23. Petaluma Hill Rd-Main St/Adobe Rd	36.7	D	**107.6**	**F**	**49.4**	**D**	**130.6**	**F**	**59.6**	**E**	**155.0**	**F**
Mitigated: widen WB approach with RT	-	-	-	-	20.5	C	35.6	D	23.4	C	49.8	D
24. Old Redwood Hwy/N McDowell Blvd	44.8	D	35.0	D	45.4	D	38.7	D	45.0	D	38.6	D
25. Old Redwood Hwy/US 101 N Ramps	7.5	A	4.2	A	7.7	A	4.8	A	7.8	A	5.2	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; WB=westbound; EB=eastbound; RT=right-turn; [1] analyzed as single-lane roundabout under plus project conditions; [2] mitigation reduces delay below levels existing before the addition of project traffic, offsetting project impacts; [3] intersection would not exist since Bodway extension is not included in this scenario; [4] approach volume <30 vehicles so LOS criteria do not apply; **Bold** text = deficient operation; Shaded cells reflect mitigated conditions

Traffic Impacts Outside the City of Rohnert Park

Of the six study intersections projected to operate unacceptably under Existing plus Project conditions, two are located in the City of Cotati and three are located in the County of Sonoma. Traffic impacts at all five of these intersections outside Rohnert Park were identified in the 2009 Sonoma Mountain Village DEIR. The DEIR identified impacts at East Cotati Avenue/Old Redwood Highway, East Cotati Avenue/La Salle Avenue, Old Redwood Highway/Railroad Avenue, and Petaluma Hill Road-Main Street/Adobe Road as significant and unavoidable as further described below. The DEIR identified impacts at Petaluma Hill Road/Railroad Avenue as being less than significant with mitigation since, at the time, signalization of the intersection was included in the City of Rohnert Park's Public Facilities Finance Plan (PFFP). This signalization was subsequently removed from the 2011 update of the PFFP, however, as it was deemed to be a regional circulation improvement.

Impacts at the study intersections outside of Rohnert Park's jurisdiction were deemed significant and unavoidable in the Sonoma Mountain Village DEIR because of uncertainties regarding the ability to implement improvements outside of the City's jurisdiction as well as uncertainties regarding funding, despite Policies TR-21A and TR-21B in the City's General Plan that call for Rohnert Park to work with adjacent jurisdictions to address regional traffic issues and contribute funding toward regional improvements. Since the time that the Sonoma Mountain Village DEIR was published in 2009, the City of Rohnert Park has established a regional traffic impact fee to be levied on certain developments including SOMO Village. For example, funds collected from the University District project have been transferred to SCTA, who in turn is transferring the funds to the County of Sonoma for improvements to the Petaluma Hill Road-Main Street/Adobe Road intersection in Penngrove. The City has also been working with SCTA to establish a mechanism for transferring regional traffic impact fee funds among jurisdictions, thereby allowing developments like SOMO to effectively contribute funds toward improvements in Cotati and the County of Sonoma.

Summary of Existing plus Project Traffic Impacts by Intersection

East Cotati Avenue/Old Redwood Highway (#5)

Operation at this intersection, which is in the City of Cotati, is projected to drop from LOS D to LOS E during the p.m. peak hour, which is below Cotati's LOS D threshold. Acceptable LOS D or better operation could be achieved by restriping the outer through lane on the westbound approach to a right-turn lane and adding a right-turn overlap phase. These modifications are a component of those identified for the intersection in the Cotati General Plan. Traffic impacts to this intersection were identified in the Sonoma Mountain Village DEIR (Impacts 3.13-4 and 3.13-10). The project should contribute a proportionate share of the funding needed for this mitigation.

East Cotati Avenue/La Salle Avenue (#6)

This intersection in the City of Cotati is projected to drop from an unacceptable LOS E to an unacceptable LOS F during both peak hours, which is below Cotati's LOS D threshold. Acceptable LOS A operation could be achieved through installation of a traffic signal, consistent with improvements identified in the Cotati General Plan. Traffic impacts to this intersection were identified in the Sonoma Mountain Village DEIR (Impacts 3.13-5 and 3.13-11). The project should contribute a proportionate share of the funding needed for this mitigation.

East Cotati Avenue/Camino Colegio (#7)

Under Existing plus Project Buildout conditions, the intersection is projected to drop from LOS C during both peak hours to unacceptable LOS E during the a.m. peak hour and LOS D during the p.m. peak hour, both of which are below Rohnert Park's LOS C threshold. With completion of only Phase 1 of SOMO Village, operation would be better, though unacceptable LOS D conditions are still anticipated to occur during the a.m. peak hour. Acceptable LOS C operation could be achieved by modifying the traffic signal to include protected-permitted left-turn

phasing on Camino Colegio. As this is a project-specific impact to an intersection in the City of Rohnert Park, the improvement should be required as a condition of approval for the project.

Old Redwood Highway/Railroad Avenue (#20)

This intersection is in the County of Sonoma. Under Existing plus Project conditions with either buildout of the project or completion of only Phase 1, operation on the eastbound approach is projected to remain at LOS F during the p.m. peak hour, with increases in delay exceeding the County of Sonoma's five-second threshold for determining impact significance. The SOMO Village project's increases to average vehicle delay could be offset by widening the eastbound approach to include a left-turn pocket and widening the westbound approach to include a right-turn pocket. With these improvements, delays would be lower than those existing without the SOMO Village project, though LOS F operation would still exist on the eastbound approach. Traffic impacts to this intersection were identified in the Sonoma Mountain Village DEIR (Impacts 3.13-3 and 3.13-9). The project should contribute a proportionate share of the funding needed for this mitigation, which the County ultimately may determine includes signalization.

Petaluma Hill Road/Railroad Avenue (#22)

This intersection is in the County of Sonoma. Under Existing plus Project conditions with either buildout of the project or completion of only Phase 1, the intersection is projected to continue operating at LOS F on the eastbound approach during both peak hours, with increases in delay exceeding the County of Sonoma's five-second threshold for determining impact significance. Installation of a traffic signal and eastbound right-turn pocket would improve operation to an acceptable LOS B during both peak hours. Traffic impacts to this intersection were identified in the Sonoma Mountain Village DEIR (Impacts 3.13-1 and 3.13-6). While this intersection is in the County of Sonoma, the identified mitigation is relatively straightforward and can be completed within the existing right-of-way. The project should be required to construct the mitigation, coordinating with and obtaining an encroachment permit from the County of Sonoma.

Petaluma Hill Road-Main Street/Adobe Road (#23)

Operation at this intersection in the unincorporated community of Penngrove in the County of Sonoma is projected to drop from LOS D to LOS E during the a.m. peak hour under Existing plus Project Buildout Conditions. During the p.m. peak hour, the intersection is projected to remain at LOS F with either buildout of the project or completion of only Phase 1. During peak hours the increases in delay would exceed the County of Sonoma's five-second threshold for determining impact significance. Acceptable operation of LOS C during the a.m. peak hour and LOS D during the p.m. peak hour could be achieved by widening the westbound approach to add a right-turn lane and adding a right-turn overlap signal phase on the same approach. Traffic impacts to this intersection were identified in the Sonoma Mountain Village DEIR (Impacts 3.13-2 and 3.13-7). The project should contribute a proportionate share of the funding needed for this mitigation.

Recommendation –The project should be responsible for paying exactions to the City of Rohnert Park for conveyance to SCTA (or directly to the City of Cotati and County of Sonoma) in order to contribute a proportionate share of funding toward improvements at East Cotati Avenue/Old Redwood Highway and East Cotati Avenue/La Salle Avenue in Cotati, and at Old Redwood Highway/Railroad Avenue and Petaluma Hill Road-Main Street/Adobe Road in the County of Sonoma.

Recommendation – The project should be responsible for modifying the intersection at East Cotati Avenue/ Camino Colegio to include protected-permitted phasing on Camino Colegio to alleviate impacts under Existing plus Project conditions.

Recommendation – The project should be responsible for installing a traffic signal and eastbound right-turn pocket at the intersection of Petaluma Hill Road/Railroad Avenue, including obtaining an encroachment permit

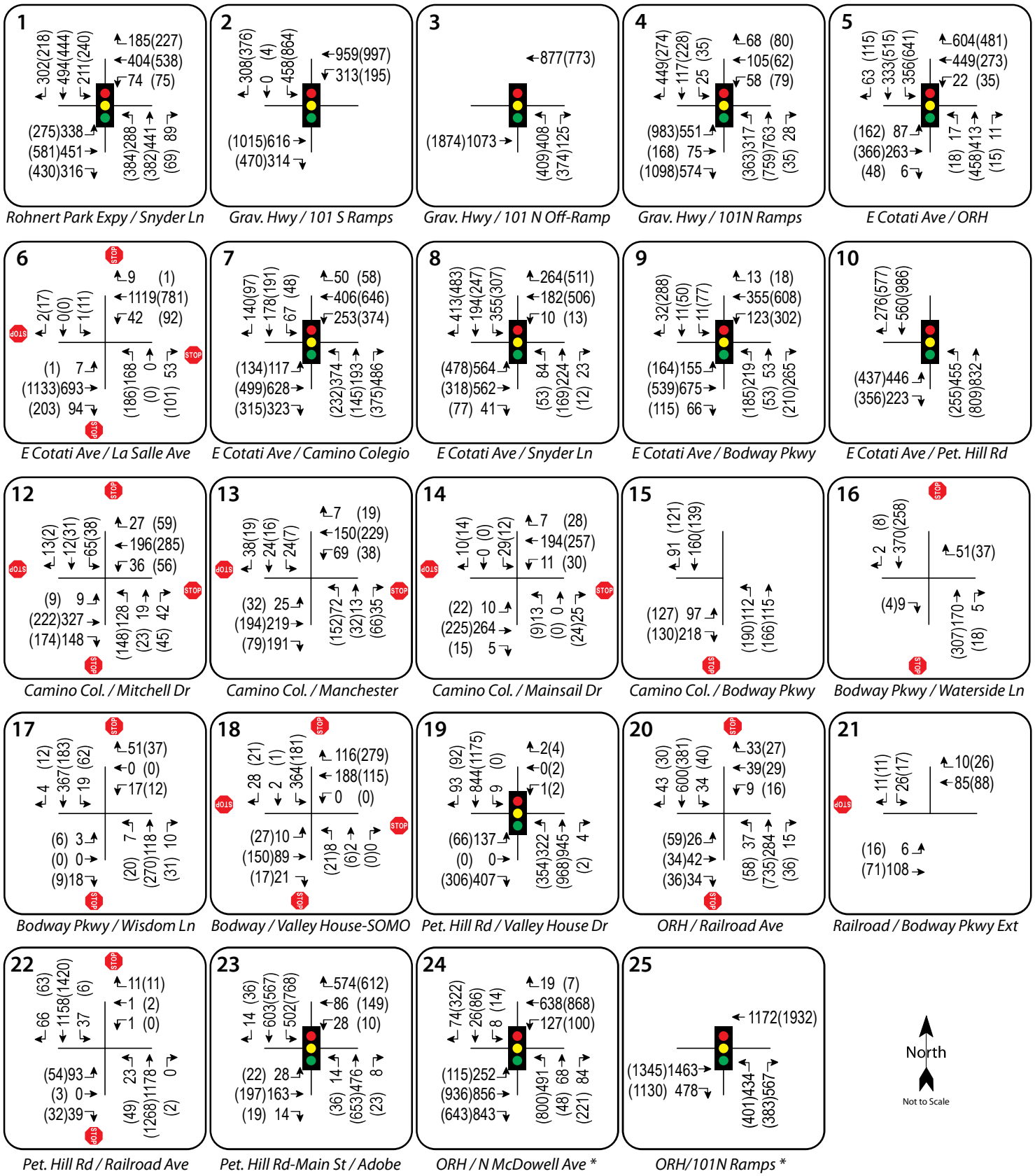
from the County of Sonoma to complete the improvement, in order to alleviate impacts under Existing plus Project conditions.

Future plus Project Conditions

With project-related traffic added to Future volumes with either buildout of the project or completion of only Phase 1, 13 of the 24 study intersections are projected to continue operating acceptably. The project is anticipated to result in traffic impacts to 11 intersections including East Cotati Avenue/Old Redwood Highway, East Cotati Avenue/La Salle Avenue, East Cotati Avenue/Camino Colegio, East Cotati Avenue/Snyder Lane, East Cotati Avenue/Bodway Parkway, East Cotati Avenue/Petaluma Hill Road, Camino Colegio/Manchester Avenue, Petaluma Hill Road/Valley House Drive, Old Redwood Highway/Railroad Avenue, Petaluma Hill Road/Railroad Avenue, and Petaluma Hill Road-Main Street/Adobe Road. Additional details regarding the project's impacts to intersection operation, including potential measures to alleviate the impacts, are provided below.

Finding – Under Future plus Project conditions with either buildout of the project or completion of only Phase 1, 11 of the 24 study intersections are projected to operate below adopted LOS standards.

Future plus Project Phase 1 traffic volumes are shown in Figure 12, and Future plus Project Buildout traffic volumes are shown in Figure 13. The intersection LOS results are summarized in Table 9.



LEGEND

xx AM Peak Hour Volume

(xx) PM Peak Hour Volume

* Old Redwood Highway considered to run east-west at these intersections

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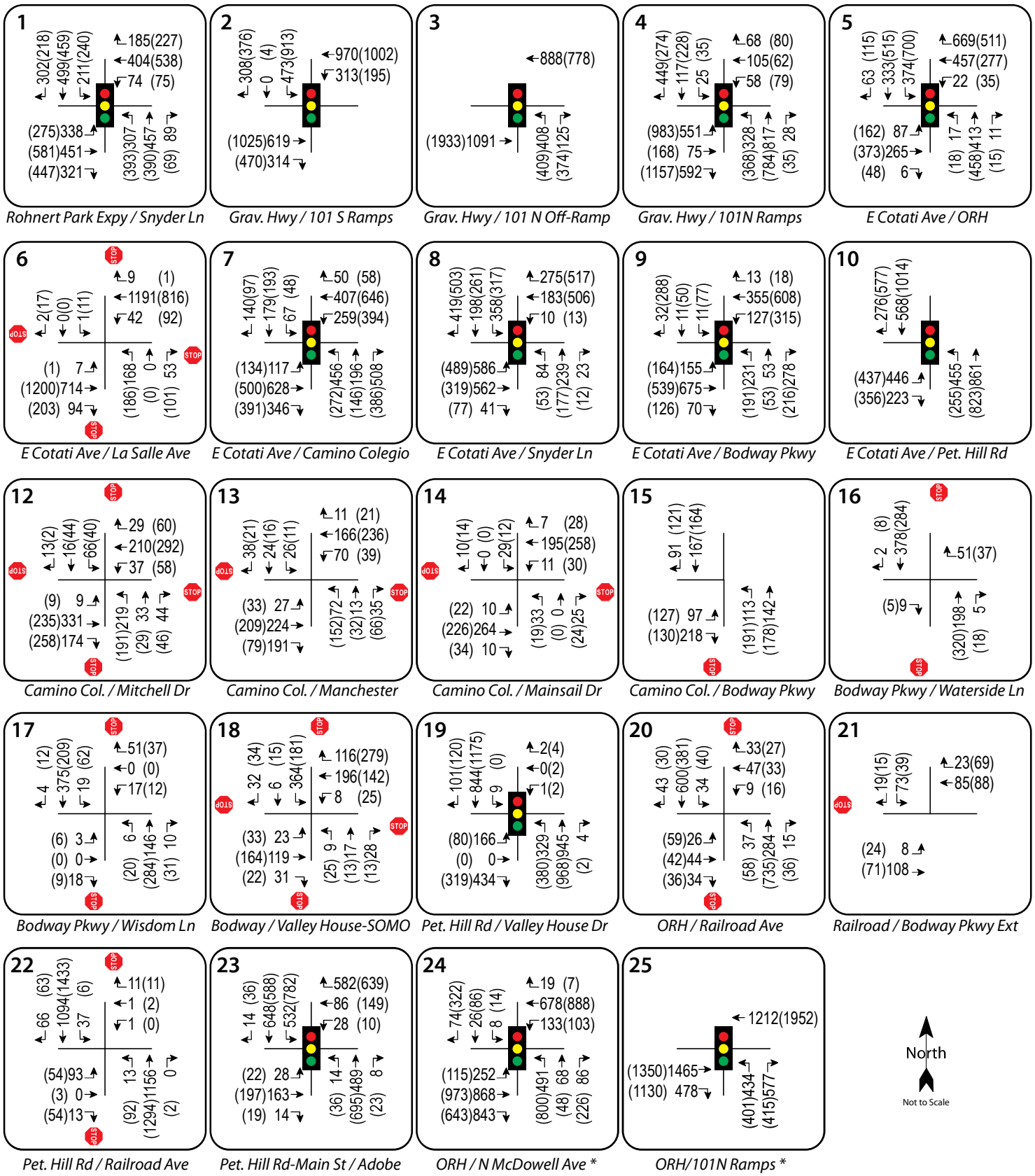
Traffic Impact Study for SOMO Village

Figure 12 – Future plus Project Phase 1 Traffic Volumes with Bodway Extension



* Old Redwood Highway considered to run east-west at these intersections

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Traffic Impact Study for SOMO Village

Figure 13 – Future plus Project Buildout Traffic Volumes

Table 9– Future and Future plus Project Peak Hour Intersection Levels of Service

Study Intersection *Approach*	Future Conditions				Future plus Phase 1				Future plus Project Buildout			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Rohnert Park Expwy/Snyder Ln	30.9	C	28.1	C	31.7	C	30.8	C	32.1	C	32.1	C
2. Gravenstein Hwy/US 101 S Ramps	21.8	C	29.7	C	22.0	C	29.3	C	22.1	C	30.2	C
3. Gravenstein Hwy/US 101 N Off-ramp	16.4	B	11.9	B	16.4	B	13.9	B	16.3	B	14.0	B
4. Gravenstein Hwy/Old Redwood Hwy	37.6	D	46.1	D	43.4	D	48.7	D	50.0	D	51.7	D
5. E Cotati Ave/Old Redwood Hwy	34.5	C	**85.1**	**F**	46.3	D	**113.0**	**F**	61.2	E	**134.0**	**F**
Mitigated: modify WB striping/phasing	-	-	-	-	26.8	C	**76.7**	**E**	30.1	C	**83.1**	**F**
Mitigated: implement modifications identified in Cotati General Plan					21.1	C	34.9	C	23.3	C	40.3	D
6. E Cotati Ave/La Salle Ave	**88.6**	**F**	**119.1**	**F**	**114.1**	**F**	**153.8**	**F**	**135.3**	**F**	**178.3**	**F**
Mitigated: signalize	-	-	-	-	6.6	A	9.7	A	6.7	A	10.1	B
7. E Cotati Ave/Camino Colegio	**50.5**	**D**	**36.4**	**D**	**93.0**	**F**	**76.9**	**E**	**132.7**	**F**	**102.1**	**F**
Mitigated: modify signal phasing	-	-	-	-	**49.9**	**D**	**49.4**	**D**	**59.4**	**E**	**62.3**	**E**
Mitigated: add EB right-turn lane					28.4	C	28.8	C	32.9	C	32.1	C
8. E Cotati Ave/Snyder Ln	**46.1**	**D**	33.9	C	**53.5**	**D**	**45.6**	**D**	**58.2**	**E**	**48.9**	**D**
Mitigated: add SB left-turn lane	-	-	-	-	32.2	C	32.3	C	34.3	C	34.2	C
9. E Cotati Ave/Bodway Pkwy	19.2	B	**36.4**	**D**	20.8	C	**40.4**	**D**	21.4	C	**42.0**	**D**
Mitigated: restripe NB to left, left-through, and right-turn lanes; add northbound right-turn overlap phase	-	-	-	-	26.0	C	34.1	C	25.9	C	34.9	C
10. E Cotati Ave/Petaluma Hill Rd	**67.3**	**E**	**91.4**	**F**	**71.7**	**E**	**95.8**	**F**	**72.6**	**E**	**100.5**	**F**
Mitigated: add EB RT lane with overlap phase; add SB RT overlap phase	-	-	-	-	50.3	D	43.7	D	50.6	D	46.0	D
12. Camino Colegio/Mitchell Dr	8.9	A	8.7	A	13.8	B	14.0	B	18.3	C	18.5	C
13. Camino Colegio/Manchester Ave	4.5	A	4.9	A	5.6	A	8.5	A	6.7	A	8.9	A
Northbound Approach	*18.9*	*C*	*12.6*	*B*	*23.0*	*C*	***25.5***	***D***	***29.6***	***D***	***27.7***	***D***

Table 9– Future and Future plus Project Peak Hour Intersection Levels of Service

Study Intersection *Approach*	Future Conditions				Future plus Phase 1				Future plus Project Buildout			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Southbound Approach	*15.3*	*C*	*11.0*	*B*	*15.9*	*C*	*13.6*	*B*	*18.0*	*C*	*14.1*	*B*
Mitigated: All-Way Stops	-	-	-	-	10.8	B	11.5	B	18.4	C	18.2	C
14. Camino Colegio/Mainsail Dr	1.1	A	1.0	A	1.8	A	1.7	A	2.2	A	1.8	A
Northbound Approach	-	-	-	-	*10.6*	*B*	*10.6*	*B*	*11.7*	*B*	*11.7*	*B*
Southbound Approach	*10.5*	*B*	*10.2*	*B*	*11.9*	*B*	*11.9*	*B*	*11.8*	*B*	*11.9*	*B*
15. Camino Colegio/Bodway Pkwy	5.5	A	5.8	A	6.6	B	7.9	A	6.2	B	8.2	A
Eastbound Approach	*11.4*	*B*	*12.9*	*B*	*13.6*	*B*	*20.7*	*C*	*13.5*	*B*	*22.6*	*C*
16. Bodway Pkwy/Waterside Ln	0.9	A	0.7	A	1.0	A	0.7	A	0.9	A	0.7	A
Eastbound Approach	-	-	-	-	*10.8*	*B*	*9.9*	*A*	*10.9*	*B*	*10.1*	*B*
Westbound Approach	*9.5*	*A*	*10.4*	*B*	*9.6*	*A*	*10.6*	*B*	*9.8*	*A*	*10.7*	*B*
17. Bodway Pkwy/Wisdom Ln	1.5	A	1.9	A	1.9	A	2.2	A	1.8	A	2.1	A
Eastbound Approach	-	-	-	-	*11.6*	*B*	*12.8*	*B*	*11.8*	*B*	*13.3*	*B*
Westbound Approach	*10.1*	*B*	*11.1*	*B*	*10.7*	*B*	*11.9*	*B*	*11.0*	*B*	*12.2*	*B*
18. Bodway Pkwy/Valley House Dr-SOMO Ave[1]	14.4	B	10.3	B	8.7	A	7.1	A	9.2	A	8.1	A
19. Petaluma Hill Rd/Valley House Dr	40.4	D	**78.1**	**E**	**55.2**	**E**	**104.8**	**F**	**62.2**	**E**	**116.3**	**F**
Mitigated[2]: add SB and EB RT overlap phases; extend NB LT pocket to 460 ft and EB RT pocket to 400 ft	-	-	-	-	39.6	D	**75.2**	**E**	42.4	D	**74.8**	**E**
20. Old Redwood Hwy/Railroad Ave	5.9	A	17.1	C	7.1	A	28.3	D	8.0	A	**35.0**	**E**
Eastbound Approach	***45.8***	***E***	***182.8***	***F***	***52.3***	***F***	***276.9***	***F***	***57.2***	***F***	***327.9***	***F***
Westbound Approach	*27.4*	*D*	***53.1***	***F***	*31.8*	*D*	***74.1***	***F***	***35.3***	***E***	***85.5***	***F***
Mitigated: signalize	-	-	-	-	13.6	B	15.2	B	13.7	B	15.3	B
21. Railroad Ave/Bodway Pkwy Extension	-	-	-	-	1.7	A	1.7	A	3.2	A	2.4	A
Southbound Approach	-	-	-	-	*9.8*	*A*	*9.6*	*A*	*10.4*	*B*	*10.2*	*B*

Table 9– Future and Future plus Project Peak Hour Intersection Levels of Service

Study Intersection *Approach*	Future Conditions				Future plus Phase 1				Future plus Project Buildout			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
22. Petaluma Hill Rd/Railroad Ave	**119.6**	**F**	**65.5**	**F**	**176.8**	**F**	**123.3**	**F**	**279.9**	**F**	**203.0**	**F**
Eastbound Approach	***2792***	***F***	***2500***	***F***	***3480***	***F***	***4012***	***F***	***4211***	***F***	***5484***	***F***
Westbound Approach	*56.1*	*F*[3]	*62.4*	*F*[3]	*72.2*	*F*[3]	*85.0*	*F*[3]	*100.0*	*F*[3]	*127.1*	*F*[3]
Mitigated: signalize, add EB RT pocket, extend NB LT to 150 ft	-	-	-	-	46.3	D	43.5	D	52.0	D	50.0	D
23. Petaluma Hill Rd-Main St/Adobe Rd	**79.4**	**E**	**172.0**	**F**	**93.6**	**F**	**200.2**	**F**	**107.6**	**F**	**223.1**	**F**
Mitigated[2]: widen WB approach to add RT lane with overlap signal phase	-	-	-	-	39.1	D	**105.8**	**F**	45.1	D	**123.7**	**F**
24. Old Redwood Hwy/N McDowell Blvd	47.5	D	44.5	D	47.7	D	44.9	D	47.9	D	45.3	D
25. Old Redwood Hwy/US 101 N Ramps	9.9	A	8.5	A	9.9	A	8.8	A	9.9	A	9.2	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; NB=Northbound, SB=Southbound, EB=Eastbound WB=westbound; RT=right-turn; LT=left-turn; [1] analyzed as single-lane roundabout under plus project conditions; [2] mitigation reduces delay below levels existing before the addition of project traffic, offsetting project impacts; [3] approach volume <30 vehicles so LOS criteria do not apply; **Bold** text = deficient operation; Shaded cells reflect mitigated conditions; Bodway Parkway extension from Valley House Drive to Railroad Avenue is included in both the Future plus Phase 1 and Future plus Project Buildout scenarios

Summary of Future plus Project Traffic Impacts by Intersection

East Cotati Avenue/Old Redwood Highway (#5)

With the addition of project traffic, operation is projected to remain at LOS F during the p.m. peak hour, with increases in delay attributable to SOMO Village Phase 1 of approximately 28 seconds and increases of approximately 49 seconds with SOMO Village buildout. With the potential improvement identified under Existing plus Project conditions (restriping the westbound approach to include a right-turn lane and right-turn overlap phase), operation would still be at LOS E or F, but delays would drop below "no project" levels. The intersection is anticipated to operate acceptably at LOS C or D with implementation of all improvements identified in the Cotati General Plan. Traffic impacts to this intersection were identified in the Sonoma Mountain Village DEIR (Impacts 3.13-4 and 3.13-10). The project should contribute a proportionate share of the funding needed for this planned mitigation.

East Cotati Avenue/La Salle Avenue (#6)

The project would substantially increase delays at the intersection, which is already projected to operate at LOS F without the project. Acceptable LOS A or B operation could be achieved through installation of a traffic signal, consistent with improvements identified in the Cotati General Plan. Traffic impacts to this intersection were identified in the Sonoma Mountain Village DEIR (Impacts 3.13-5 and 3.13-11). The project should contribute a proportionate share of the funding needed for this planned mitigation.

East Cotati Avenue/Camino Colegio (#7)

With the addition of project traffic with either buildout or completion of only Phase 1, operation is projected to drop from LOS D to LOS F during the a.m. and p.m. peak hours. With the potential improvement identified under Existing plus Project conditions (converting the left-turn phasing from protected to protected-permitted on Camino Colegio) and completion of only SOMO Village Phase 1, the intersection would return to the "no project" LOS D level, reducing the project impact to less-than-significant. With full buildout of SOMO Village, however, the signal phasing mitigation would only improve operation to LOS E, which is below the "no project" LOS and represents a significant impact per the City's criteria. To achieve acceptable LOS C or better operation, the eastbound approach would need to be widened to add a right-turn lane, and the signal modified to also provide protected-permitted left turn phasing on East Cotati Avenue. Traffic impacts to this intersection were not identified in the Sonoma Mountain Village DEIR.

The project should be responsible for implementing these improvements. The signal phasing modifications would need to be completed prior to completion of SOMO Village Phase 1 in order to reduce the project's impacts to less than significant levels. Widening the eastbound approach to add a right-turn lane would not be required to reduce impacts to less than significant levels with development of only Phase 1 but would be needed for project buildout. Because it is anticipated that additional right-of-way will need to be obtained from the parcel on the southwest intersection corner to construct the new eastbound right-turn lane, however, there is uncertainty as to whether the improvement can be successfully implemented. If the improvement cannot be assured, this may be considered a significant and unavoidable impact in the environmental document to be prepared for SOMO Village.

East Cotati Avenue/Snyder Lane (#8)

With the addition of project traffic, operation is projected to drop from LOS C to LOS D during the p.m. peak hour with either buildout of the project or completion of only Phase 1 and drop from LOS D to LOS E during the a.m. peak hour with project buildout. These drops in LOS are considered a significant impact per Rohnert Park's criteria. To achieve acceptable LOS C or better operation, the southbound approach would need to be modified to include a second left-turn lane. This modification appears to be feasible within the existing right-of-way by narrowing the

existing median. Traffic impacts to this intersection were not identified in the Sonoma Mountain Village DEIR. The project should be responsible for implementing these improvements.

East Cotati Avenue/Bodway Parkway (#9)

While the intersection is projected to encounter increased delays, the unacceptable p.m. peak hour LOS D operation occurring under Future conditions without the project would not change because of added project traffic with either buildout or completion of only Phase 1. Based on the City of Rohnert Park's criteria, this would reflect a less-than-significant impact. While not an impact that requires mitigation by SOMO Village, operation could be improved to LOS C by restriping the northbound Bodway Parkway approach to include separate left-turn, left-turn/through, and right-turn lanes, and adding a right-turn overlap phase on the northbound approach. Traffic impacts to this intersection were not identified in the Sonoma Mountain Village DEIR.

East Cotati Avenue/Petaluma Hill Road (#10)

The intersection is projected to operate unacceptably at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour with either buildout of SOMO Village or completion of only Phase 1. With development of only Phase 1, the increases in average vehicle delays would be 4.4 seconds during both peak hours, which represents a less than significant impact per County of Sonoma Criteria. With full buildout of SOMO Village, however, the project is anticipated to increase delays by more than five seconds during both peak hours, which represents a significant impact. Acceptable LOS D operation could be achieved by widening the eastbound approach to add a right-turn lane and adding right-turn overlap signal phases on the eastbound and southbound approaches. Traffic impacts to this intersection were not identified in the Sonoma Mountain Village DEIR. While this intersection is in the County of Sonoma, the identified mitigation is relatively straightforward and can be completed within the existing right-of-way. The project should therefore be required to construct the mitigation, coordinating with and obtaining an encroachment permit from the County of Sonoma. From a CEQA significance perspective the improvement would not be required to support development of SOMO Village Phase 1 but would be required prior to buildout of the project.

Camino Colegio/Manchester Avenue (#13)

The intersection is projected to operate unacceptably at LOS D during the p.m. peak hour under Future plus Project conditions with either buildout of the project or completion of only Phase 1. Operation could be improved to acceptable LOS B/C with the installation of all-way stop-controls. Traffic impacts to this intersection were not identified in the Sonoma Mountain Village DEIR. The project should be responsible for the improvements.

Petaluma Hill Road/Valley House Drive (#19)

With the addition of project traffic to future conditions, with either buildout of the project or completion of only Phase 1, intersection operation is projected to drop from LOS D to LOS E during the a.m. peak hour and from LOS E to LOS F during the p.m. peak hour. Average vehicle delays would increase by more than five seconds during both peak hours; this is a significant impact under County of Sonoma criteria. The project's contribution to average vehicle delays could be reduced below "no project" conditions by adding southbound and eastbound right-turn overlap phases, lengthening the northbound left-turn pocket to 460 feet, and lengthening the eastbound right-turn pocket to 400 feet (see focused queuing evaluation below for additional information regarding turn pocket lengths). With these improvements, however, the level of service would remain at LOS E during the p.m. peak hour; a regional approach to managing traffic volumes on Petaluma Hill Road would likely be required to achieve acceptable LOS D operation. Traffic impacts to this intersection were not identified in the Sonoma Mountain Village DEIR. While this intersection is in the County of Sonoma, the identified mitigation is relatively straightforward and can be completed within the existing right-of-way. The project should be required to construct the mitigation, coordinating with and obtaining an encroachment permit from the County of Sonoma.

Old Redwood Highway/Railroad Avenue (#20)

Under Future plus Project conditions, including either buildout of the project or completion of only Phase 1, the eastbound and westbound approaches would continue to operate at LOS F during one or both peak hours, with increases in delay exceeding five seconds because of the project, which based on County of Sonoma criteria represents a significant impact. Installation of a traffic signal at the intersection would improve operation to LOS B during both peak hours. Traffic impacts to this intersection were identified in the Sonoma Mountain Village DEIR (Impacts 3.13-3 and 3.13-9). The project should contribute a proportionate share of the funding needed for this mitigation.

Petaluma Hill Road/Railroad Avenue (#22)

Under Future plus Project conditions, the eastbound and westbound approaches would operate at LOS F during both peak hours, with increases in delay exceeding five seconds with either buildout of the project or completion of only Phase 1, which based on County of Sonoma criteria represents a significant impact. Installation of a traffic signal and eastbound right-turn pocket as identified under Existing plus Project conditions would alleviate the LOS impact, but to address queuing needs (evaluated below) the northbound left-turn pocket would also need to be extended to 150 feet. Traffic impacts to this intersection were identified in the Sonoma Mountain Village DEIR (Impacts 3.13-1 and 3.13-6). While this intersection is in the County of Sonoma, it appears that these turn lane improvements can be completed within the existing right-of-way. The project should be required to construct the mitigation, coordinating with and obtaining an encroachment permit from the County of Sonoma.

Petaluma Hill Road-Main Street/Adobe Road (#23)

With the addition of project traffic to future conditions with either buildout of the project or completion of only Phase 1, intersection operation is projected to drop from LOS E to LOS F during the a.m. peak hour and remain at LOS F during the p.m. peak hour. Average vehicle delays would increase by more than five seconds during both peak hours which, based on County of Sonoma criteria, represents a significant impact. With the potential improvement identified under Existing plus Project conditions (adding a westbound right-turn pocket with right-turn overlap phase), delays would drop below "no project" levels but operation would remain LOS F during the p.m. peak hour. Achieving acceptable LOS D operation would require a regional approach to managing traffic volumes on Petaluma Hill Road and in Penngrove. Traffic impacts to this intersection were identified in the Sonoma Mountain Village DEIR (Impacts 3.13-2 and 3.13-7). The project should contribute a proportionate share of the funding needed for this mitigation.

Recommendation – The project should be responsible for modifying the intersection at East Cotati Avenue/ Camino Colegio to include protected-permitted left-turn phasing on all four approaches. Prior to any development occurring beyond Phase 1, the project should also be responsible for widening the eastbound approach to add a right-turn lane.

Recommendation – The project should be responsible for adding a second southbound left-turn lane at the intersection of East Cotati Avenue/Snyder Lane.

Recommendation – Prior to any development occurring beyond Phase 1, the project should be responsible for adding an eastbound right-turn lane and adding southbound and eastbound right-turn overlap signal phasing at the intersection of East Cotati Avenue/Petaluma Hill Road, including obtaining an encroachment permit from the County of Sonoma to complete the improvements.

Recommendation – The project should be responsible for adding southbound and eastbound right-turn overlap signal phases at the intersection of Petaluma Hill Road/Valley House Drive, lengthening the northbound left-turn pocket to 460 feet and the eastbound right-turn pocket to 400 feet, and obtaining an encroachment permit from the County of Sonoma to complete the improvements.

Recommendation – In addition to signalizing the intersection at Petaluma Hill Road/Railroad Avenue as identified under Existing plus Project conditions, the project should be responsible for lengthening the northbound left-turn pocket to 150 feet.

Recommendation – While the project may contribute funds toward circulation improvements in Cotati and the County of Sonoma through payment of exactions imposed by the City, the project applicants should proactively and collaboratively work with both jurisdictions to ensure that the improvements are in place prior to completion of the project.

Focused Queuing Evaluation

The project is anticipated to add northbound left turns at the Petaluma Hill Road intersections at Valley House Drive and Railroad Avenue. Given the context of Petaluma Hill Road as a rural arterial with a 45-mph speed limit, and the associated potential for queue blockages in the northbound through lane to adversely affect operation and safety, it was determined that a focused review of queuing at these intersections should be completed.

Under each traffic analysis scenario, the projected maximum queues in the northbound left-turn pockets were determined using the SIMTRAFFIC application of Synchro, averaging the maximum projected queues occurring during ten simulation runs. The results are summarized in Table 10. Copies of the SIMTRAFFIC projections are contained in Appendix C.

Table 10 – Projected Northbound Left-Turn Queues on Petaluma Hill Road

	Available Storage	Maximum Queues					
		Existing Without Project	Existing + SOMO Phase 1	Existing + SOMO Buildout	Future Without Project	Future + SOMO Phase 1	Future + SOMO Buildout
AM Peak Hour							
At Valley House Dr	110	**124**	**218**	**177**	**229**	**257**	**249**
At Railroad Ave	100	26	28	41	66	40	81
PM Peak Hour							
At Valley House Dr	110	**130**	**295**	**253**	**288**	**360**	**459**
At Railroad Ave	100	36	38	89	**106**	**129**	**149**

Notes: Maximum queues based on those occurring during the average of ten SIMTRAFFIC runs; all distances are measured in feet; **Bold** text = queue length exceeds available storage; Bodway Parkway extension is included in all project scenarios *except* Existing plus Phase 1

Queues in the northbound left-turn pocket at Petaluma Hill Road/Valley House Drive already exceed the available 110-foot storage. Upon the addition of project-generated traffic, these queues are anticipated to lengthen, with the maximum predicted queue to be during the future p.m. peak hour at 360 feet with Phase 1 and 460 feet at project buildout.

Queues at the Petaluma Hill Road/Railroad Avenue intersection are predicted to remain within the available storage under Existing and Existing plus Project conditions but would exceed the available storage in the future. Under Future plus Project conditions during the p.m. peak hour, the maximum projected queue in the northbound left-turn lane is 129 feet with Phase 1 and 149 feet at project buildout.

Finding – The project is anticipated to lengthen northbound left-turn queues at Petaluma Hill Road/Valley House Drive where the existing storage is already exceeded and is also anticipated to lengthen queues at Petaluma Hill Road/Railroad Avenue where storage is anticipated to be exceeded in the future.

Recommendation – As part of its required intersection improvements, the project should be responsible for extending the northbound left-turn pockets to 460 feet at Petaluma Hill Road/Valley House Drive and 150 feet at Petaluma Hill Road/Railroad Avenue to accommodate the addition of traffic associated with the project, obtaining necessary encroachment permits from the County of Sonoma to complete the improvements.

Alternative Modes

Pedestrian Facilities

The project site depicts sidewalks on its internal grid street system, extending the pedestrian networks that currently exist to the north in the "M" Section neighborhood as well as new facilities being constructed to the east in the Southeast Area Plan neighborhood. The project would connect to the existing SMART multi-use path that runs along the east side of the rail corridor, providing a pedestrian-bicycle link to the Cotati SMART station to the north. The project site would also maintain an existing segment of the SMART path that currently ends at Valley House Drive (SOMO Avenue) and is planned to be extended south to Petaluma in the future.

The site plan appears to depict a single connection to the SMART multiuse path on 2nd Street, which connects to the wider site area via B Street. While this connection to the SMART path is centrally-located within the site, having only a single connection to the path ultimately creates longer walking (and bicycling) distances. Further, based on the Final Credo High School Safe Routes to School Engineering Evaluation, it was identified that a substantial portion of students use the SMART trail to access the Credo campus. There is a makeshift opening in the fence between the northwest portion of the SOMO Village site and the SMART path that students use to access the SMART path. The site plan should be updated to formalize a pedestrian connection in at least one location in the northwest portion of the site, minimizing the distance pedestrians need to travel to access the path when walking or biking to the SMART station.

The SMART path currently ends at Valley House Drive, though an informal connection to Railroad Avenue south of Valley House Drive exists via a maintenance road. The project should be responsible for formalizing this pathway linkage including obtaining proper easements for its use or constructing a parallel extension of the path to Railroad Avenue along the western boundary of the project site. This is a critical linkage in the pedestrian/bicycle network and should be completed as part of Phase 1. Once development beyond Phase 1 occurs, an additional pedestrian connection to the SMART path should also be provided in the southern developed portion of the site (for example, a connection to the western terminus of 5th Street).

Inadequate lighting along the SMART path near SOMO Village was also identified in the Safe Routes to School evaluation. Pedestrian-scale lighting should be installed along the path between the Cotati SMART station and the pathway's access points to SOMO Village.

Because the project site plan is conceptual in nature, it does not depict specific crosswalk locations or striping, though it is assumed that existing marked crosswalks bordering the site on Camino Colegio and Bodway Parkway would be maintained. On Camino Colegio, marked crosswalks currently exist at Mitchell Drive, Manchester Avenue, and Bodway Parkway. While most of these crossing locations are appropriately-located and reasonably-spaced, tying into likely walking routes made by the project's pedestrians, an additional crosswalk on the west leg at Manchester Avenue should be installed to accommodate the existing pedestrian walking patterns between the Sonoma County Transit bus stop and Credo High School.

On the project site's Bodway Parkway frontage, crosswalks exist at Camino Colegio, Waterside Lane, and SOMO Avenue-Valley House Drive. The project may generate consistent pedestrian crossing demand at the Wisdom Lane intersection, attributable to SOMO Village residents walking to and from the nearby public park in the Southeast Area Plan neighborhood, as well as residents of the Southeast Area Plan walking to the nearby mixed-use area in SOMO Village. It is recommended that the SOMO Village project be responsible for installing a crosswalk at the Bodway Parkway/Wisdom Lane intersection with similar design treatments to those recently provided at the Bodway Parkway/Waterside Lane intersection.

The project site plan does not appear to depict new sidewalks along the Camino Colegio or Bodway Parkway frontages, though the existing paths are comprised of deteriorating asphalt and must be replaced.

Finding – The project's onsite pedestrian facilities as proposed are well-connected and anticipated to perform adequately, but additional frontage improvements and connections to the SMART trail and neighborhoods in the Southeast Area Plan are needed to effectively connect to the surrounding network.

Recommendation – The project should include additional connections to the SMART multiuse pathway in the northern and southern developed portions of the site and should include an extension of the SMART path from Valley House Drive (SOMO Avenue) to Railroad Avenue along the western boundary of the project site as part of Phase 1. Additionally, the project should include installation of pedestrian-scale lights on the SMART path between the Cotati SMART station and connection points to SOMO Village.

Recommendation – A new crosswalk should be established on the west leg of Camino Colegio/Manchester Avenue intersection.

Recommendation – The project should include construction of new sidewalks on its Camino Colegio and Bodway Parkway frontages.

Recommendation – A new crosswalk should be established at the Bodway Parkway/Wisdom Lane intersection, incorporating high-visibility crossing treatments consistent with those installed at the adjacent Bodway Parkway/Waterside Lane intersection.

Bicycle Facilities

The project site plan indicates that bicycle lanes would be constructed on B Street, 5th Street, Pope Street, SOMO Avenue, the Bodway Parkway extension between SOMO Avenue and 5th Street, and the segment of Manchester Avenue between SOMO Avenue and 5th Street. The bicycle connection to the SMART path via 2nd Street creates an awkward bicycling route. A more convenient route would be to extend a path westward from the roundabout at B Street/SOMO Avenue, providing direct connectivity to the SMART path from the project's primary north-south and east-west corridors at a controlled, low-speed intersection (ultimately proposed to be a roundabout) that is easy for bicyclists to navigate when traveling to and from the SMART path.

The site plan appears to depict no changes to bicycle facilities on Camino Colegio or Bodway Parkway. While bike lanes on Bodway Parkway are already in place and sufficient to accommodate project-related bicycle traffic, bicycle network improvements are necessary on Camino Colegio. The *Countywide Bicycle and Pedestrian Master Plan* (referred to as the Countywide Bike Plan below) depicts future on-street bicycle lanes on Camino Colegio along the project frontage. There is currently insufficient width on eastbound Camino Colegio to stripe bicycle lanes. It is recommended that the project be responsible for widening Camino Colegio along the project frontage to provide space for two 11-foot wide travel lanes and a 6-foot wide bike lane. The project should also be responsible for striping on-street bicycle lanes on Camino Colegio between Bodway Parkway and Mitchell Drive, connecting the existing bicycle network on Bodway Parkway to the northern areas of the project site.

The Countywide Bike Plan depicts a future Class I pathway extending westward from the intersection of Bodway Parkway/Valley House Drive-SOMO Avenue, crossing the SMART rail corridor before continuing west into Cotati. The path would be part of the Laguna de Santa Rosa regional trail that is planned to extend to Sebastopol. Construction of the SMART bike crossing would require further coordination with the rail agency as well as securing right-of-way for a future trail extension to the west; as such it is considered a regional project that would be constructed at a later time. The SOMO Village project includes open space in the area where this potential future crossing would be and would not preclude its construction.

Similar to the Countywide Bike Plan, the City's bike plan depicts an off-street path connecting the intersection of Bodway Parkway/SOMO Avenue-Valley House Drive to the SMART path. The SOMO Village site plan does not depict such a connection; the project proposes to include bicycle lanes on SOMO Avenue that could reasonably serve some bicyclists in this area, but an off-street trail consistent with the City's bicycle plan and Countywide Bike Plan should also be provided. Provision of this trail either along SOMO Avenue or across the southern portion of the site (including a connecting segment along the Bodway Parkway extension) would satisfy the functional intent of both plans.

Finding – The project as proposed includes an integrated network of onsite bicycle facilities that are anticipated to function well, making bicycling within the site a viable travel alternative.

Finding – The project does not appear to comply with plans for bike lanes on Camino Colegio and would benefit from additional connections to the regional SMART pathway to make bicycling more convenient and attractive.

Finding – The project does not appear to comply with plans to provide a Class I bike path between Bodway Parkway and the SMART path, as shown in the City's Bike Plan and Countywide Bike Plan.

Recommendation – The project should extend a path westward from the intersection at B Street/SOMO Avenue to the SMART path.

Recommendation – The project should restripe Camino Colegio along the project frontage to include bike lanes between Mitchell Drive and Bodway Parkway, including widening of eastbound Camino Colegio to provide sufficient space for the new bike lane.

Recommendation – The project should include construction of a segment of the planned Laguna de Santa Rosa regional trail between Bodway Parkway and the SMART corridor, either 1) along SOMO Avenue or 2) along the southern developed portion of the site including a connecting pathway segment along the project's Bodway Parkway extension.

Transit

The project site is well-served by both local and regional bus transit routes operated by Sonoma County Transit. The project is also located within a reasonable walking and bicycling distance of the Cotati SMART commuter rail station, making rail transit a viable option for the project's residents, employees, and visitors. Access to transit would be improved with implementation of the pedestrian circulation recommendations identified above, including installation of an additional crosswalk at the Camino Colegio/Manchester Drive intersection. As recommended in the Credo High School Safe Routes to School evaluation, the Sonoma County Transit bus stop on the northeast corner of Camino Colegio/Manchester Avenue should be relocated to the northwest corner, and the sidewalk near the relocated transit stop widened to accommodate the high volume of riders using this stop. It is further recommended that the applicant be responsible for installing a transit shelter at the relocated stop per Sonoma County Transit specifications.

With implementation of the recommended pedestrian and bicycle improvements identified above, including improved connections between the site and the SMART multi-use pathway, effective linkages to transit would be established.

Finding – The project would be well-served by both bus and rail transit. The project would be expected to increase both bus and rail transit ridership and reduce auto reliance, both of which are considered beneficial impacts.

Recommendation – The project should include relocation of the Sonoma County Transit bus stop at Camino Colegio/Manchester to the northwest intersection corner, including widening of the sidewalk and installation of transit shelters to Sonoma County Transit's specifications at the relocated stop.

Access and Circulation

Site Access

The SOMO site currently has vehicular connections to the surrounding roadway network at two existing intersections: Camino Colegio/Manchester Avenue and Bodway Parkway/Valley House Drive. The proposed project would establish a grid network of streets within the site, expanding the number of access points to six existing intersections. Additionally, the project would extend Bodway Parkway southward from Valley House Drive to Railroad Avenue, with an additional five intersection connecting the project site to the surrounding network. The project site plan does not include intersection-level details such as where turn lanes would be provided. Following is an evaluation of how access to the project site could be accommodated at the current and proposed intersections on Camino Colegio and Bodway Parkway.

Camino Colegio

The project would have three intersections on Camino Colegio. Camino Colegio has two travel lanes in each direction plus a raised median along the project frontage. Median breaks with eastbound left-turn pockets exist at Emerald Pointe Apartments, Mitchell Drive, Manchester Avenue, and Mainsail Drive. The intersection at Manchester Avenue, which is the only location that currently has a leg on the south side of Camino Colegio, also includes a westbound left-turn pocket. On-street parking is currently allowed in the westbound direction. Bicycle lanes are planned on this segment of Camino Colegio but do not currently exist.

The project would need to modify Camino Colegio, which is designated as a major collector, to include new westbound left-turn pockets at Mitchell Drive and Mainsail Drive. Sufficient space exists within the existing medians to establish the new left-turn pockets. During a review of bicycle circulation (described above) it was also determined that Camino Colegio has insufficient existing widths to accommodate planned bike lanes and would need to be widened along the project frontage.

Recommendation – Camino Colegio Lane Reconfiguration

- Widen eastbound Camino Colegio along the project frontage to provide space for two 11-foot travel lanes and a 6-foot bike lane, striping the bike lane between Mitchell Drive and Bodway Parkway.
- Restripe westbound Camino Colegio between Bodway Parkway and Mitchell Drive to add on-street bike lanes.

Specific intersection-related recommendations are identified below.

Recommendation – Camino Colegio/Mitchell Drive

- Reconfigure the existing median to add a 100-foot long westbound left-turn pocket.
- Include a left-turn lane and shared through/right-turn lane on the new northbound approach
- The operational analysis indicates that acceptable operation could result by maintaining the current all-way stop-controls.

Recommendation – Camino Colegio/Manchester Avenue

- Install all-way stop controls.

Recommendation – Camino Colegio/Mainsail Drive

- Reconfigure the existing median to add a 100-foot long westbound left-turn pocket.
- Provide side-street stop controls on Mainsail Drive.

Recommendation – Camino Colegio/Bodway Parkway

- Maintain separate eastbound left- and right-turn lanes, slightly narrowing the existing median to create enough width for a bike lane between the left- and right-turn lanes (alternatively, maintain existing median and slightly widen roadway into the project site to create space for the bike lane).

Bodway Parkway

At buildout, the project would access Bodway Parkway via eight intersections. The northernmost access would add a new western leg to the intersection at Waterside Lane, maintaining the current raised median on Bodway Parkway, and creating a right-turn in/right-turn out configuration. The next intersection to the south at Wisdom Lane has an existing median break and southbound left-turn pocket; the project would need to modify the Bodway Parkway median at this location to add a northbound left-turn pocket serving the site. Both Waterside Lane and Wisdom Lane would operate acceptably with side-street stop controls. The project's primary access point on Bodway Parkway would be at SOMO Avenue-Valley House Drive and would be converted to a single-lane roundabout.

The five project intersections to the south of Valley House Drive would be located on an extension of Bodway Parkway. This street extension is anticipated to carry substantially less traffic than segment to the north of Valley House Drive and would function acceptably with one lane in each direction plus bike lanes, consistent with the "Modified Avenue" configuration assumed in the City's Public Facilities Finance Plan. Based on the site plan's configuration and anticipated traffic volumes, the addition of northbound left-turn pockets appears to be unnecessary at any of these five future intersections, and all locations would function acceptably with side-street stop controls.

Recommendation – Bodway Parkway/Waterside Lane

- Maintain the existing raised median and right-turn in/right-turn out configuration.
- Provide side-street stop controls on Waterside Lane.

Recommendation – Bodway Parkway/Wisdom Lane

- Add a northbound left-turn pocket within the existing median area.
- Provide side-street stop controls.

Recommendation – Configure the segment of Bodway Parkway to the south of Valley House Drive as a "Modified Avenue" including one travel lane and bike lanes in each direction, with stop controls on the minor street approaches.

Onsite Circulation

All the project's internal streets would include one vehicle travel lane in each direction, sidewalks, and on-street parking. Given the "grid" street network proposed on the site, traffic volumes are anticipated to be dispersed, with all streets easily accommodating anticipated volumes with single lanes of traffic in each direction. All intersections within the site would be unsignalized. A single-lane roundabout is shown at the intersection of B Street/SOMO Avenue and, given the anticipated traffic volumes, would be expected to perform well. Intersection controls at the remaining internal streets, as well as crossing improvements for pedestrians and bicyclists, should be determined during the evaluation and review of improvement plans. Because ride sharing services have become a popular means of travel, and because a rise in the use of automated vehicles (AV) is anticipated to occur within the next decade, it is recommended that improvement plans for the project include designated curb space to accommodate the increased frequency of pick up/drop off activity associated with new transportation technologies.

Finding – The project's internal circulation system is anticipated to function acceptably.

Conclusions and Recommendations

Conclusions

- The proposed SOMO Village project is expected to generate an average of 14,323 daily trips, including 920 trips in the a.m. peak hour and 1,288 trips during the p.m. peak hour. Development associated with Phase 1 of the project is projected to generate 9,625 daily trips including 577 during the a.m. peak hour and 912 during the p.m. peak hour.

- Compared to the trip generation estimates analyzed in the Sonoma Mountain Village EIR, the SOMO Village site at buildout is projected to generate fewer 2,742 fewer daily trips and 350 fewer p.m. peak hour trips. Buildout of the site is, however, expected to generate 270 more a.m. peak hour trips than were analyzed in the Sonoma Mountain Village EIR.

- The estimated timeline by which the Bodway Parkway extension should be completed is approximately 10 to 15 years (by 2030 to 2035), or upon development of the southern portion of SOMO Village, whichever occurs first.

- Under Existing plus Project conditions, with either buildout of the project or completion of only Phase 1, six of the 24 study intersections are projected to operate below adopted LOS standards, with this increasing to 11 of the 24 study intersections under Future plus Project conditions.

- Under Future plus Project Buildout conditions, the project may result in significant and unavoidable impact at East Cotati Avenue/Camino Colegio, where there is uncertainty as to whether a new eastbound right-turn lane can be implemented since the improvement would require right-of-way acquisition. Impacts at this location were not previously identified in the Sonoma Mountain Village DEIR.

- The project is anticipated to lengthen northbound left-turn queues at Petaluma Hill Road/Valley House Drive where the existing storage is already exceeded and is also anticipated to lengthen queues at Petaluma Hill Road/Railroad Avenue where storage is anticipated to be exceeded in the future.

- The project's onsite pedestrian facilities are well-connected and anticipated to perform adequately, but additional frontage improvements and connections to the SMART trail and neighborhoods in the Southeast Area Plan are needed to effectively connect to the surrounding network.

- The project as proposed includes an integrated network of onsite bicycle facilities that are anticipated to function well, making bicycling within the site a viable travel alternative.

- The project does not appear to comply with plans for bike lanes on Camino Colegio and would benefit from additional connections to the regional SMART pathway to make bicycling more convenient and attractive.

- The project does not appear to comply with provision of a Class I bike path between Bodway Parkway and the SMART path, as shown in the City's bike plan and Countywide Bike Plan.

- The project would be well-served by both bus and rail transit. The project would be expected to increase both bus and rail transit ridership and reduce auto reliance, both of which are considered beneficial impacts.

- The project's internal circulation system is anticipated to function acceptably.

Recommendations

The recommendations provided below in Table 11 include those identified throughout the traffic impact study, summarized by location for ease of reference. Note that all recommendations apply to Phase 1 of the proposed project unless otherwise noted. An exhibit showing locations of the recommended circulation improvements to be completed by the project is shown in Figure 14.

Table 11 – Summary of Recommendations

Location	Recommendation
Intersections	
5. E. Cotati Ave/Old Redwood Hwy	**Project Responsibility** • Applicant shall be responsible for contributing a proportionate share of the costs to fund planned future improvements. **Near-Term Improvement** • Restripe outer westbound through/right-turn lane to a right-turn lane and add a right-turn overlap phase. **Future Improvement** • Implement remaining improvements identified in Cotati General Plan including modifying southbound approach to include two left-turn lanes and a shared through/right-turn lane plus associated modifications on the segment of East Cotati Avenue immediately east of the intersection.
6. E. Cotati Ave/La Salle Ave	**Project Responsibility** • Applicant shall be responsible for contributing a proportionate share of the costs to fund planned future improvements. **Near-Term and Future Improvements** • Signalize the intersection.
7. E. Cotati Ave/ Camino Colegio	**Project Responsibility** • Modify the signal phasing to include protected-permitted left-turn phasing on both Camino Colegio approaches. • For any project development occurring beyond Phase 1, widen East Cotati Avenue to add an eastbound right-turn pocket with right-turn overlap phase and modify left-turn phasing on E. Cotati Avenue to protected-permitted. • New right-turn lane requires right-of-way acquisition; if right-of-way cannot be obtained, impact may be considered significant and unavoidable.
8. E. Cotati Ave/ Snyder Ln-Maurice Ave	**Project Responsibility** • Reconfigure lanes and median on northern intersection leg to add a second left-turn lane (needed to offset project impacts under future conditions).
9. E. Cotati Ave/ Bodway Pkwy	**Future Improvement** • Restripe northbound approach to include a left-turn lane, left-through lane, and right-turn lane and add a right-turn overlap phase (needed to meet LOS C standard under future conditions; not considered a project impact per City policy since SOMO Village would not change the LOS).
10. E. Cotati Ave/ Petaluma Hill Rd	**Project Responsibility** • For any project development occurring beyond Phase 1, widen the eastbound approach to add a 150-foot long right-turn lane with right-turn overlap signal phase, and add a right-turn overlap phase on the southbound approach.

Table 11 – Summary of Recommendations	
	• Improvements can be accommodated within the existing right-of-way; applicant shall be responsible for obtaining an encroachment permit from the County of Sonoma.

12. Camino Colegio/ Mitchell Dr	**Project Responsibility**
	• Modify Camino Colegio:
	  ○ Reconfigure the existing median to add a 100-foot long westbound left-turn pocket.
	  ○ Include a left-turn lane and shared through/right-turn lane on the new northbound approach
	• Retain all-way STOP controls.

13. Camino Colegio/ Manchester Ave	**Project Responsibility** • Install all-way STOP controls. • Add a new crosswalk on the western intersection leg. • Relocate bus stop to the northwest intersection corner, including widening of the sidewalk and installation of transit shelters to Sonoma County Transit's specifications.
14. Camino Colegio/ Mainsail Dr	**Project Responsibility** • Modify Camino Colegio: ○ Reconfigure the existing median to add a 100-foot long westbound left-turn pocket. • Install STOP sign on new northbound approach.
15. Camino Colegio/ Bodway Pkwy	**Project Responsibility** • Modify Camino Colegio: ○ Maintain separate eastbound left- and right-turn lanes, narrowing existing median to create enough width for a bike lane between the left- and right-turn lanes (alternatively, maintain existing median and widen roadway into the project site to create space for the bike lane).
16. Bodway Pkwy/ Waterside Ln	**Project Responsibility** • Maintain right-in/right-out configuration with raised median. • Install STOP sign on new eastbound approach.
17. Bodway Pkwy/ Wisdom Ln	**Project Responsibility** • Install a northbound left-turn pocket. • Install a new crosswalk incorporating high-visibility crossing treatments consistent with those installed at the adjacent Waterside Lane intersection. • Install STOP sign on new eastbound approach.
19. Petaluma Hill Rd/ Valley House Dr	**Project Responsibility** • Extend northbound left-turn pocket storage to 460 feet. • Extend eastbound right-turn pocket storage to 400 feet. • Add eastbound and southbound right-turn overlap signal phases. • Improvements can be accommodated within the existing right-of-way; applicant shall be responsible for obtaining an encroachment permit from the County of Sonoma. • The above improvements offset the project's increase to delay but still result in LOS E operation under future conditions; regional transportation measures would be required on the Petaluma Hill Road corridor to achieve acceptable operation.

Table 11 – Summary of Recommendations	
20. Old Redwood Hwy/ Railroad Ave	**Project Responsibility** • Applicant shall be responsible for contributing a proportionate share of the costs to fund planned future improvements. **Near-Term Improvement** • Widen the eastbound approach to include a left-turn pocket and the westbound approach to include a right-turn pocket. • This improvement would offset the project's increase to delay but still result in LOS F operation on the eastbound approach. **Future Improvement** • Signalize the intersection.
22. Petaluma Hill Rd/ Railroad Ave	**Project Responsibility** • Widen the eastbound approach to add an approximately 105-foot long right-turn pocket. • Signalize the intersection. • Extend northbound left-turn pocket storage to 150 feet. • Improvements can be accommodated within the existing right-of-way; applicant shall be responsible for obtaining an encroachment permit from the County of Sonoma.
23. Petaluma Hill Rd-Main St/Adobe Rd	**Project Responsibility** • Applicant shall be responsible for contributing a proportionate share of the costs to fund planned future improvements. **Near-Term Improvement** • Widen the westbound approach to include a right-turn lane and add a right-turn overlap signal phase. **Future Improvement** • Implementation of the near-term improvement would offset the project's increase to future delay but still result in LOS F operation; regional transportation measures would be required on the Petaluma Hill Road corridor to achieve acceptable operation.
Road Segments	
Camino Colegio	**Project Responsibility** • Widen eastbound Camino Colegio along the project frontage to provide space for two 11-foot travel lanes and a 6-foot bike lane, striping the bike lane between Mitchell Drive and Bodway Parkway. • Restripe westbound Camino Colegio between Bodway Parkway and Mitchell Drive to add on-street bike lanes. • Construct new sidewalks along project frontage.
Bodway Pkwy	**Project Responsibility** • Install single-lane roundabout at SOMO Avenue-Valley House Drive as proposed. • Construct new sidewalks along project frontage. • Construct the segment to the south of Valley House Drive in tandem with development of adjacent areas (after Phase 1) as a "Modified Avenue" including one travel lane and bike lanes in each direction, with stop controls on the minor street approaches. • If the project does not develop areas south of SOMO Avenue-Valley House Drive, it should still contribute to the cost of extending Bodway Parkway through payment

Table 11 – Summary of Recommendations	
	of PFFP fees, as the roadway is estimated to be needed to support areawide traffic in the next 10-15 years.
Paths	
SMART Path - including connections to project site	**Project Responsibility** • Northern connection: construct a connection to the SMART multiuse pathway in the northern portion of the site. • Central connection: construct a path westward from the roundabout at B Street/ SOMO Avenue to the SMART path; this connection could replace or be in addition to that shown at the eastern terminus of 2nd Street. • Southern extension: as part of Phase 1, construct an extension of the SMART path from SOMO Avenue to Railroad Avenue or upgrade the existing maintenance road to function as a path, including acquisition of necessary easements. • Southern connection: construct a path between Bodway Parkway and the SMART corridor in the southern developed portion of the site as development beyond Phase 1 occurs in that area. • Install pedestrian-scale lights on the SMART path between the Cotati SMART station and pedestrian connection points to SOMO Village.
Laguna de Santa Rosa Trail Extension	**Project Responsibility** • Construct a Class I pathway segment between Bodway Parkway and the SMART corridor either 1) along SOMO Avenue or 2) along the southern developed portion of the site including a connecting pathway segment along the project's Bodway Parkway extension.
General	
Multijurisdictional Collaboration	**Project Responsibility** • Proactively and collaboratively work not only with Rohnert Park, but also with Cotati and the County of Sonoma to ensure that improvements funded through exactions are in place prior to completion of the project.
Curb Space Management	**Project Responsibility** • Roadway improvement plans for the project's onsite streets should include designated curb space in commercial and multifamily residential areas to accommodate the increased frequency of pick up/drop off activity associated with new transportation technologies including ridesharing services and autonomous vehicles.

Notes: Near-Term Improvements refer to potential modifications that would alleviate impacts under Existing plus Project conditions; Future Improvements refer to potential modifications that would alleviate impacts or be necessary to accommodate future traffic under year 2040 Future plus Project conditions

Lighting

SMART Path Lighting
Add pathway lighting between project and Cotati SMART station

Paths

SMART Path Extension
As part of Phase 1, extend path from SOMO Ave to Railroad Ave

Laguna de Santa Rosa Trail
As part of Phase 1, construct off-street path between Bodway Pkwy and SMART Path

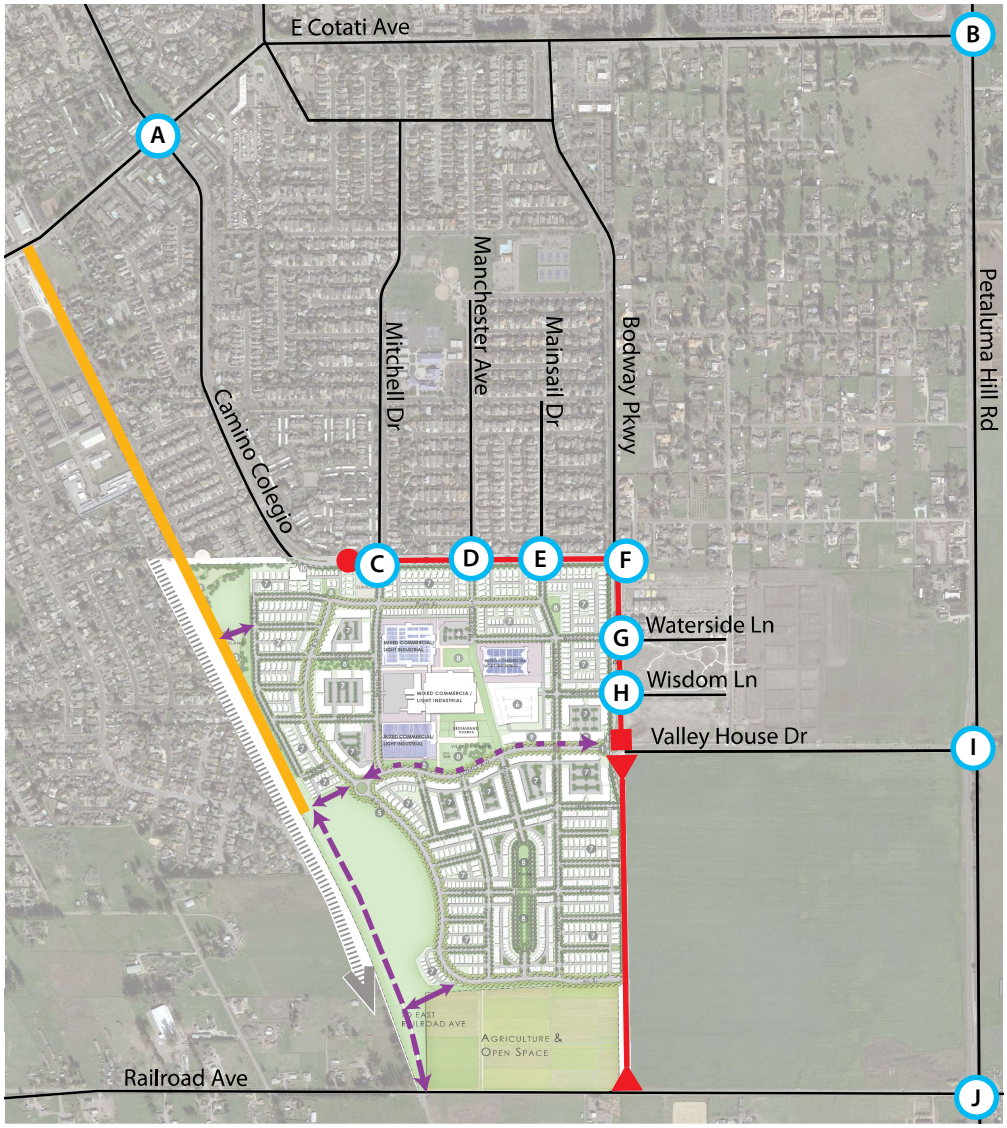
SMART Path Connections
Add path connections in northwest project area, at SOMO Ave, and (upon development of Phase 2) in southern developed area

Frontages

Camino Colegio Project
Widen eastbound Camino Colegio to provide space for two travel lanes plus a bike lane, striping bike lanes between Bodway Pkwy and Mitchell Dr; construct new sidewalks on south side of the street

Bodway Pkwy Phase 1
Construct new sidewalks on west side of the street

Bodway Pkwy Phase 2
Construct street extension to Railroad Ave as part of Phase 2 including single lanes and bike lanes in each direction, and sidewalks on west side of the street



Intersection Improvements

A	**E Cotati Ave/Camino Colegio (#7)**	Phase 1: Modify signal phasing. Phase 2: Widen eastbound approach to add right-turn lane and modify signal phasing
B	**E Cotati Ave/Petaluma Hill Rd (#10)**	Phase 2: Widen eastbound approach to add right-turn lane and modify signal phasing
C	**Camino Colegio/Mitchell Dr (#12)**	Add westbound left-turn pocket
D	**Camino Colegio/Manchester Ave (#13)**	Install all-way stop controls, add crosswalk on west leg, relocate bus stop to northwest intersection corner including widening of sidewalk and new transit shelters
E	**Camino Colegio/Mainsail Dr (#14)**	Add westbound left-turn pocket
F	**Camino Colegio/Bodway Pkwy (#15)**	Modify eastbound approach to include separate left- and right-turn lanes plus a bike lane
G	**Bodway Pkwy/Waterside Ln (#16)**	Maintain raised median and restrictions to right-turns only
H	**Bodway Pkwy/Wisdom Ln (#17)**	Add northbound left-turn pocket and install high-visibility crosswalk crossing Bodway Pkwy
I	**Petaluma Hill Rd/Valley House Dr (#19)**	Extend storage lengths in northbound left-turn & eastbound right-turn pockets, modify signal phasing
J	**Petaluma Hill Rd/Railroad Ave (#22)**	Signalize the intersection and widen the eastbound approach to add right-turn pocket

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Traffic Impact Study for SOMO Village

Figure 14 - Recommended Circulation Improvements to be Completed by the Project

Study Participants and References

Study Participants

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Appendix A

Intersection Level of Service Calculations

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HCM 2010 Signalized Intersection Summary
1: Snyder Ln & Rohnert Park Expwy

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	274	300	238	39	166	85	208	339	59	160	391	245
Future Volume (veh/h)	274	300	238	39	166	85	208	339	59	160	391	245
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		0.98	1.00		0.98	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	315	345	260	45	191	93	239	390	65	184	449	268
Adj No. of Lanes	2	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	498	702	556	166	520	455	538	1164	648	491	1116	711
Arrive On Green	0.14	0.20	0.20	0.09	0.15	0.15	0.16	0.33	0.33	0.14	0.32	0.32
Sat Flow, veh/h	3442	3539	1558	1774	3539	1559	3442	3539	1519	3442	3539	1528
Grp Volume(v), veh/h	315	345	260	45	191	93	239	390	65	184	449	268
Grp Sat Flow(s),veh/h/ln	1721	1770	1558	1774	1770	1559	1721	1770	1519	1721	1770	1528
Q Serve(g_s), s	7.1	7.2	10.7	2.0	4.0	3.7	5.2	6.9	2.1	4.0	8.2	9.5
Cycle Q Clear(g_c), s	7.1	7.2	10.7	2.0	4.0	3.7	5.2	6.9	2.1	4.0	8.2	9.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	498	702	556	166	520	455	538	1164	648	491	1116	711
V/C Ratio(X)	0.63	0.49	0.47	0.27	0.37	0.20	0.44	0.33	0.10	0.37	0.40	0.38
Avail Cap(c_a), veh/h	623	1935	1099	321	1931	1076	623	1931	977	623	1931	1063
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	29.5	20.7	34.9	31.9	22.2	31.7	21.0	14.4	32.2	22.2	14.6
Incr Delay (d2), s/veh	0.6	0.2	0.2	0.3	0.2	0.1	0.2	0.1	0.0	0.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	3.5	4.6	1.0	2.0	1.6	2.5	3.4	0.9	1.9	4.0	4.0
LnGrp Delay(d),s/veh	33.9	29.7	20.9	35.3	32.0	22.3	31.9	21.0	14.5	32.3	22.3	14.8
LnGrp LOS	C	C	C	D	C	C	C	C	B	C	C	B
Approach Vol, veh/h		920			329			694			901	
Approach Delay, s/veh		28.7			29.7			24.2			22.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.8	33.1	11.7	22.2	16.9	31.9	16.0	18.0
Change Period (Y+Rc), s	4.0	5.8	4.0	* 5.8	4.0	5.8	4.0	* 5.8
Max Green Setting (Gmax), s	15.0	45.2	15.0	* 45	15.0	45.2	15.0	* 45
Max Q Clear Time (g_c+I1), s	6.0	8.9	4.0	12.7	7.2	11.5	9.1	6.0
Green Ext Time (p_c), s	0.1	0.9	0.0	0.8	0.1	1.1	0.1	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
2: US 101 SB Ramps & Gravenstein Hwy

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	496	255	254	730	0	0	0	0	354	0	250
Future Volume (veh/h)	0	496	255	254	730	0	0	0	0	354	0	250
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	0	1863	1937	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	517	172	265	760	0				369	0	153
Adj No. of Lanes	0	2	1	1	2	0				2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1142	523	731	2744	0				491	0	222
Arrive On Green	0.00	0.32	0.32	0.82	1.00	0.00				0.14	0.00	0.14
Sat Flow, veh/h	0	3632	1622	1774	3632	0				3442	0	1553
Grp Volume(v), veh/h	0	517	172	265	760	0				369	0	153
Grp Sat Flow(s),veh/h/ln	0	1770	1622	1774	1770	0				1721	0	1553
Q Serve(g_s), s	0.0	12.7	8.8	4.1	0.0	0.0				11.3	0.0	10.3
Cycle Q Clear(g_c), s	0.0	12.7	8.8	4.1	0.0	0.0				11.3	0.0	10.3
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1142	523	731	2744	0				491	0	222
V/C Ratio(X)	0.00	0.45	0.33	0.36	0.28	0.00				0.75	0.00	0.69
Avail Cap(c_a), veh/h	0	1142	523	731	2744	0				829	0	374
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.90	0.90	0.96	0.96	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	29.5	28.2	6.1	0.0	0.0				45.3	0.0	44.8
Incr Delay (d2), s/veh	0.0	1.2	1.5	0.1	0.2	0.0				0.9	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.4	4.2	1.9	0.1	0.0				5.4	0.0	4.5
LnGrp Delay(d),s/veh	0.0	30.7	29.7	6.2	0.2	0.0				46.1	0.0	46.3
LnGrp LOS		C	C	A	A					D		D
Approach Vol, veh/h		689			1025						522	
Approach Delay, s/veh		30.5			1.8						46.2	
Approach LOS		C			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	9.8	40.0		20.2		89.8		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	4.5	35.5		26.5		74.5		
Max Q Clear Time (g_c+I1), s	6.1	14.7		13.3		2.0		
Green Ext Time (p_c), s	0.2	3.9		2.4		5.2		

Intersection Summary	
HCM 2010 Ctrl Delay	21.0
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
3: US 101 NB Off-ramp & Gravenstein Hwy

04/02/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	849	0	0	701	280	90
Future Volume (veh/h)	849	0	0	701	280	90
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863
Adj Flow Rate, veh/h	884	0	0	730	292	69
Adj No. of Lanes	2	0	0	3	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	2788	0	0	4006	449	207
Arrive On Green	0.53	0.00	0.00	0.79	0.13	0.13
Sat Flow, veh/h	3725	0	0	5421	3442	1583
Grp Volume(v), veh/h	884	0	0	730	292	69
Grp Sat Flow(s),veh/h/ln	1770	0	0	1695	1721	1583
Q Serve(g_s), s	15.6	0.0	0.0	3.9	8.9	4.4
Cycle Q Clear(g_c), s	15.6	0.0	0.0	3.9	8.9	4.4
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2788	0	0	4006	449	207
V/C Ratio(X)	0.32	0.00	0.00	0.18	0.65	0.33
Avail Cap(c_a), veh/h	2788	0	0	4006	1173	540
HCM Platoon Ratio	0.67	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.00	0.00	0.76	1.00	1.00
Uniform Delay (d), s/veh	9.2	0.0	0.0	2.9	45.4	43.5
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	1.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	0.0	0.0	1.9	4.3	2.0
LnGrp Delay(d),s/veh	9.4	0.0	0.0	3.0	47.0	44.4
LnGrp LOS	A			A	D	D
Approach Vol, veh/h	884			730	361	
Approach Delay, s/veh	9.4			3.0	46.5	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		91.2				91.2		18.8
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		63.5				63.5		37.5
Max Q Clear Time (g_c+I1), s		17.6				5.9		10.9
Green Ext Time (p_c), s		13.5				10.6		3.5

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Old Redwood Hwy & Gravenstein Hwy/Gravenstein Way

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	422	61	444	47	85	55	247	567	23	20	95	364
Future Volume (veh/h)	422	61	444	47	85	55	247	567	23	20	95	364
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	435	63	0	48	88	46	255	585	15	21	98	359
Adj No. of Lanes	2	1	1	1	1	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	669	362	308	184	119	62	391	797	20	379	397	646
Arrive On Green	0.19	0.19	0.00	0.10	0.10	0.10	0.22	0.22	0.22	0.21	0.21	0.21
Sat Flow, veh/h	3442	1863	1583	1774	1147	600	1774	3613	93	1774	1863	1583
Grp Volume(v), veh/h	435	63	0	48	0	134	255	301	299	21	98	359
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	0	1747	1774	1863	1842	1774	1863	1583
Q Serve(g_s), s	7.6	1.8	0.0	1.6	0.0	4.9	8.5	9.8	9.8	0.6	2.9	11.3
Cycle Q Clear(g_c), s	7.6	1.8	0.0	1.6	0.0	4.9	8.5	9.8	9.8	0.6	2.9	11.3
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	669	362	308	184	0	181	391	411	406	379	397	646
V/C Ratio(X)	0.65	0.17	0.00	0.26	0.00	0.74	0.65	0.73	0.73	0.06	0.25	0.56
Avail Cap(c_a), veh/h	1291	699	594	652	0	642	516	542	536	679	713	914
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.3	21.9	0.0	27.0	0.0	28.4	23.2	23.7	23.7	20.4	21.3	14.8
Incr Delay (d2), s/veh	0.4	0.1	0.0	0.3	0.0	2.2	0.7	2.2	2.2	0.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	1.0	0.0	0.8	0.0	2.5	4.3	5.3	5.2	0.3	1.5	6.4
LnGrp Delay(d),s/veh	24.7	22.0	0.0	27.2	0.0	30.6	23.9	25.8	25.9	20.5	21.4	15.1
LnGrp LOS	C	C		C		C	C	C	C	C	C	B
Approach Vol, veh/h		498			182			855			478	
Approach Delay, s/veh		24.3			29.8			25.3			16.6	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		17.2		18.4		10.8		18.9
Change Period (Y+Rc), s		4.5		4.5		4.0		4.5
Max Green Setting (Gmax), s		24.5		25.0		24.0		19.0
Max Q Clear Time (g_c+I1), s		9.6		13.3		6.9		11.8
Green Ext Time (p_c), s		2.4		0.6		0.2		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	23.4
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	207	5	18	354	428	4	335	3	267	270	47
Future Volume (veh/h)	71	207	5	18	354	428	4	335	3	267	270	47
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	74	216	3	19	369	399	4	349	2	278	281	44
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	633	526	32	540	482	8	546	3	328	618	518
Arrive On Green	0.05	0.34	0.34	0.02	0.31	0.31	0.00	0.15	0.15	0.19	0.33	0.33
Sat Flow, veh/h	1774	1863	1548	1774	1770	1579	1774	3607	21	1774	1863	1559
Grp Volume(v), veh/h	74	216	3	19	369	399	4	171	180	278	281	44
Grp Sat Flow(s),veh/h/ln	1774	1863	1548	1774	1770	1579	1774	1770	1858	1774	1863	1559
Q Serve(g_s), s	2.4	5.1	0.1	0.6	10.8	13.8	0.1	5.3	5.4	8.9	7.0	1.1
Cycle Q Clear(g_c), s	2.4	5.1	0.1	0.6	10.8	13.8	0.1	5.3	5.4	8.9	7.0	1.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	94	633	526	32	540	482	8	268	281	328	618	518
V/C Ratio(X)	0.79	0.34	0.01	0.59	0.68	0.83	0.52	0.64	0.64	0.85	0.45	0.09
Avail Cap(c_a), veh/h	226	1015	844	163	902	804	121	962	1010	678	1598	1337
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	14.5	12.9	28.7	18.0	19.0	29.3	23.5	23.5	23.2	15.5	13.5
Incr Delay (d2), s/veh	5.4	0.1	0.0	6.2	0.6	1.4	19.1	0.9	0.9	2.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.6	0.0	0.4	5.3	6.2	0.1	2.7	2.8	4.5	3.6	0.5
LnGrp Delay(d),s/veh	33.0	14.6	12.9	34.9	18.5	20.4	48.3	24.4	24.4	25.5	15.7	13.5
LnGrp LOS	C	B	B	C	B	C	D	C	C	C	B	B
Approach Vol, veh/h		293			787			355			603	
Approach Delay, s/veh		19.3			19.9			24.7			20.1	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	24.5	4.8	24.1	7.6	22.5	15.4	13.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.4	32.1	4.0	50.5	7.5	30.0	22.5	32.0
Max Q Clear Time (g_c+I1), s	2.6	7.1	2.1	9.0	4.4	15.8	10.9	7.4
Green Ext Time (p_c), s	0.0	0.4	0.0	0.5	0.0	1.8	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	20.7
HCM 2010 LOS	C

HCM 2010 AWSC
6: La Salle Ave & E Cotati Ave

04/02/2019

Intersection	
Intersection Delay, s/veh	36.2
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	534	76	34	835	7	136	0	43	1	0	2
Future Vol, veh/h	6	534	76	34	835	7	136	0	43	1	0	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	568	81	36	888	7	145	0	46	1	0	2
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	19.9	51.7	16.8	11.2
HCM LOS	C	F	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	76%	100%	0%	0%	100%	0%	0%	33%
Vol Thru, %	0%	0%	100%	70%	0%	100%	98%	0%
Vol Right, %	24%	0%	0%	30%	0%	0%	2%	67%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	179	6	356	254	34	557	285	3
LT Vol	136	6	0	0	34	0	0	1
Through Vol	0	0	356	178	0	557	278	0
RT Vol	43	0	0	76	0	0	7	2
Lane Flow Rate	190	6	379	270	36	592	304	3
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.426	0.013	0.698	0.482	0.068	1.037	0.53	0.007
Departure Headway (Hd)	8.053	7.145	6.636	6.422	6.81	6.301	6.284	8.395
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	446	498	542	557	523	574	571	429
Service Time	5.848	4.933	4.423	4.209	4.589	4.08	4.062	6.095
HCM Lane V/C Ratio	0.426	0.012	0.699	0.485	0.069	1.031	0.532	0.007
HCM Control Delay	16.8	10	23.5	15.1	10.1	72.6	16	11.2
HCM Lane LOS	C	A	C	C	B	F	C	B
HCM 95th-tile Q	2.1	0	5.5	2.6	0.2	16.2	3.1	0

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	566	243	39	366	45	237	168	104	60	155	126
Future Volume (veh/h)	105	566	243	39	366	45	237	168	104	60	155	126
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	121	651	228	45	421	37	272	193	17	69	178	40
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	759	266	147	916	80	314	424	352	225	260	59
Arrive On Green	0.12	0.30	0.30	0.08	0.28	0.28	0.18	0.23	0.23	0.13	0.18	0.18
Sat Flow, veh/h	1774	2554	894	1774	3281	287	1774	1863	1545	1774	1465	329
Grp Volume(v), veh/h	121	451	428	45	226	232	272	193	17	69	0	218
Grp Sat Flow(s),veh/h/ln	1774	1770	1678	1774	1770	1798	1774	1863	1545	1774	0	1794
Q Serve(g_s), s	4.6	17.0	17.1	1.7	7.5	7.6	10.6	6.3	0.6	2.5	0.0	8.1
Cycle Q Clear(g_c), s	4.6	17.0	17.1	1.7	7.5	7.6	10.6	6.3	0.6	2.5	0.0	8.1
Prop In Lane	1.00		0.53	1.00		0.16	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	204	526	499	147	494	502	314	424	352	225	0	319
V/C Ratio(X)	0.59	0.86	0.86	0.31	0.46	0.46	0.87	0.45	0.05	0.31	0.00	0.68
Avail Cap(c_a), veh/h	250	726	688	250	751	763	375	843	699	250	0	686
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.8	23.5	23.5	30.6	21.1	21.2	28.4	23.6	21.4	28.1	0.0	27.3
Incr Delay (d2), s/veh	1.0	5.7	6.0	0.4	0.2	0.2	14.8	0.3	0.0	0.3	0.0	1.0
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	2.3	9.1	8.7	0.8	3.7	3.8	6.4	3.3	0.3	1.2	0.0	4.1
LnGrp Delay(d),s/veh	30.8	29.2	29.6	31.0	21.4	21.4	43.1	23.9	21.4	28.4	0.0	28.3
LnGrp LOS	C	C	C	C	C	C	D	C	C	C		C
Approach Vol, veh/h		1000			503			482			287	
Approach Delay, s/veh		29.5			22.3			34.7			28.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	26.0	16.6	17.5	12.2	24.7	13.0	21.1
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	10.0	29.1	15.0	27.1	10.0	30.1	10.0	32.1
Max Q Clear Time (g_c+I1), s	13.7	19.1	12.6	10.1	6.6	9.6	4.5	8.3
Green Ext Time (p_c), s	0.0	1.6	0.0	0.4	0.0	0.9	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	28.9
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	506	37	9	148	137	76	182	21	308	160	211
Future Volume (veh/h)	177	506	37	9	148	137	76	182	21	308	160	211
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	3	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.95	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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	203	582	29	10	170	85	87	209	11	354	184	105
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	271	1106	676	40	646	643	226	633	33	404	532	686
Arrive On Green	0.15	0.31	0.31	0.02	0.18	0.18	0.13	0.19	0.19	0.22	0.28	0.28
Sat Flow, veh/h	1774	3539	1520	1774	3539	1550	1774	3412	178	1774	1863	1556
Grp Volume(v), veh/h	203	582	29	10	170	85	87	108	112	354	184	105
Grp Sat Flow(s),veh/h/ln	1774	1770	1520	1774	1770	1550	1774	1770	1821	1774	1863	1556
Q Serve(g_s), s	7.7	9.5	0.8	0.4	2.9	2.4	3.2	3.7	3.8	13.6	5.5	2.9
Cycle Q Clear(g_c), s	7.7	9.5	0.8	0.4	2.9	2.4	3.2	3.7	3.8	13.6	5.5	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	271	1106	676	40	646	643	226	328	338	404	532	686
V/C Ratio(X)	0.75	0.53	0.04	0.25	0.26	0.13	0.38	0.33	0.33	0.88	0.35	0.15
Avail Cap(c_a), veh/h	505	1920	1027	379	1668	1084	505	733	754	505	772	888
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	20.0	11.3	34.0	24.8	13.0	28.3	25.0	25.0	26.6	20.0	12.0
Incr Delay (d2), s/veh	1.6	0.1	0.0	1.2	0.1	0.0	0.4	0.2	0.2	11.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	4.7	0.3	0.2	1.4	1.0	1.6	1.8	1.9	8.6	2.8	1.2
LnGrp Delay(d),s/veh	30.2	20.2	11.3	35.1	24.9	13.1	28.7	25.2	25.2	41.6	20.2	12.0
LnGrp LOS	C	C	B	D	C	B	C	C	C	D	C	B
Approach Vol, veh/h		814			265			307			643	
Approach Delay, s/veh		22.4			21.5			26.2			30.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	27.0	13.0	24.7	14.8	17.8	19.7	18.0
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	15.0	38.1	20.0	29.1	20.0	33.1	20.0	29.1
Max Q Clear Time (g_c+I1), s	12.4	11.5	5.2	7.5	9.7	4.9	15.6	5.8
Green Ext Time (p_c), s	0.0	1.4	0.0	0.4	0.1	0.4	0.1	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	25.4
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	608	48	42	203	12	73	35	196	10	10	29
Future Volume (veh/h)	140	608	48	42	203	12	73	35	196	10	10	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	161	699	33	48	233	6	84	40	82	11	11	9
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	234	1308	62	167	1209	31	490	506	420	274	244	634
Arrive On Green	0.13	0.38	0.38	0.09	0.34	0.34	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	3439	162	1774	3526	91	1370	1863	1547	651	897	1564
Grp Volume(v), veh/h	161	360	372	48	117	122	84	40	82	22	0	9
Grp Sat Flow(s),veh/h/ln	1774	1770	1831	1774	1770	1847	1370	1863	1547	1548	0	1564
Q Serve(g_s), s	4.8	8.8	8.8	1.4	2.6	2.6	2.7	0.9	2.3	0.0	0.0	0.2
Cycle Q Clear(g_c), s	4.8	8.8	8.8	1.4	2.6	2.6	3.2	0.9	2.3	0.5	0.0	0.2
Prop In Lane	1.00		0.09	1.00		0.05	1.00		1.00	0.50		1.00
Lane Grp Cap(c), veh/h	234	673	697	167	607	633	490	506	420	518	0	634
V/C Ratio(X)	0.69	0.53	0.53	0.29	0.19	0.19	0.17	0.08	0.20	0.04	0.00	0.01
Avail Cap(c_a), veh/h	798	1595	1650	479	1276	1332	877	1032	857	941	0	1075
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.0	13.4	13.4	23.4	12.9	12.9	16.1	15.1	15.6	14.9	0.0	9.9
Incr Delay (d2), s/veh	3.6	1.4	1.4	0.9	0.3	0.3	0.4	0.1	0.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	4.6	4.7	0.7	1.3	1.4	1.1	0.5	1.0	0.3	0.0	0.1
LnGrp Delay(d),s/veh	26.6	14.8	14.8	24.4	13.2	13.2	16.4	15.2	16.0	15.0	0.0	10.0
LnGrp LOS	C	B	B	C	B	B	B	B	B	B		A
Approach Vol, veh/h		893			287			206			31	
Approach Delay, s/veh		16.9			15.1			16.0			13.5	
Approach LOS		B			B			B			B	

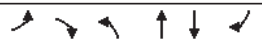
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.2	26.1		20.3	11.3	24.0		20.3
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		* 5.2
Max Green Setting (Gmax), s	5.0	50.1		* 31	25.0	40.1		* 31
Max Q Clear Time (g_c+I1), s	3.4	10.8		2.5	6.8	4.6		5.2
Green Ext Time (p_c), s	0.1	10.4		0.2	0.4	2.7		1.5

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

04/02/2019



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	364	201	256	552	498	141
Future Volume (veh/h)	364	201	256	552	498	141
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1976	1863	1863	1863	1863
Adj Flow Rate, veh/h	414	119	291	627	566	96
Adj No. of Lanes	0	0	1	1	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	446	128	334	1046	603	513
Arrive On Green	0.32	0.32	0.19	0.56	0.32	0.32
Sat Flow, veh/h	1393	400	1774	1863	1863	1583
Grp Volume(v), veh/h	534	0	291	627	566	96
Grp Sat Flow(s),veh/h/ln	1797	0	1774	1863	1863	1583
Q Serve(g_s), s	23.1	0.0	12.8	17.9	23.7	3.5
Cycle Q Clear(g_c), s	23.1	0.0	12.8	17.9	23.7	3.5
Prop In Lane	0.78	0.22	1.00			1.00
Lane Grp Cap(c), veh/h	575	0	334	1046	603	513
V/C Ratio(X)	0.93	0.00	0.87	0.60	0.94	0.19
Avail Cap(c_a), veh/h	716	0	641	1403	638	542
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	31.7	11.6	26.4	19.5
Incr Delay (d2), s/veh	14.8	0.0	2.8	0.2	20.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.8	0.0	6.5	9.1	15.6	1.5
LnGrp Delay(d),s/veh	41.3	0.0	34.5	11.8	47.0	19.6
LnGrp LOS	D		C	B	D	B
Approach Vol, veh/h	534			918	662	
Approach Delay, s/veh	41.3			19.0	43.1	
Approach LOS	D			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		50.6		29.7	19.1	31.5		
Change Period (Y+Rc), s		5.5		4.0	4.0	5.5		
Max Green Setting (Gmax), s		60.5		32.0	29.0	27.5		
Max Q Clear Time (g_c+I1), s		19.9		25.1	14.8	25.7		
Green Ext Time (p_c), s		1.1		0.6	0.3	0.3		

Intersection Summary	
HCM 2010 Ctrl Delay	32.2
HCM 2010 LOS	C

Notes

HCM 2010 AWSC
12: Camino Colegio & Mitchell Dr 04/02/2019

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	293	105	12	49	12
Future Vol, veh/h	8	293	105	12	49	12
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	9	337	121	14	56	14
Number of Lanes	1	2	2	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	3
HCM Control Delay	7.7	8.6	9.2
HCM LOS	A	A	A

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	80%
Vol Thru, %	0%	100%	100%	100%	74%	0%
Vol Right, %	0%	0%	0%	0%	26%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	147	147	70	47	61
LT Vol	8	0	0	0	0	49
Through Vol	0	147	147	70	35	0
RT Vol	0	0	0	0	12	12
Lane Flow Rate	9	168	168	80	54	70
Geometry Grp	7	7	7	8	8	7
Degree of Util (X)	0.014	0.228	0.146	0.119	0.076	0.111
Departure Headway (Hd)	5.333	4.865	3.125	5.307	5.094	5.721
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	674	741	1150	676	704	627
Service Time	3.046	2.579	0.838	3.035	2.822	3.453
HCM Lane V/C Ratio	0.013	0.227	0.146	0.118	0.077	0.112
HCM Control Delay	8.1	9	6.4	8.8	8.2	9.2
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0	0.9	0.5	0.4	0.2	0.4

HCM 2010 TWSC
13: Camino Colegio & Manchester Ave 04/02/2019

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	156	168	30	55	5	38	2	20	22	4	24
Future Vol, veh/h	18	156	168	30	55	5	38	2	20	22	4	24
Conflicting Peds, #/hr	0	0	53	0	0	6	0	0	24	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	60	-	60	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	21	179	193	34	63	6	44	2	23	25	5	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	75	0	0	425	0	0	476	514	263	297	607	44
Stage 1	-	-	-	-	-	-	371	371	-	140	140	-
Stage 2	-	-	-	-	-	-	105	143	-	157	467	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	1530	-	-	1138	-	-	474	465	739	635	411	1020
Stage 1	-	-	-	-	-	-	624	621	-	851	782	-
Stage 2	-	-	-	-	-	-	892	780	-	832	563	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1521	-	-	1081	-	-	418	419	686	573	371	1011
Mov Cap-2 Maneuver	-	-	-	-	-	-	418	419	-	573	371	-
Stage 1	-	-	-	-	-	-	584	582	-	835	753	-
Stage 2	-	-	-	-	-	-	833	751	-	772	528	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.8	13.2	10.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	418	419	686	1521	-	-	1081	-	-	686
HCM Lane V/C Ratio	0.104	0.005	0.034	0.014	-	-	0.032	-	-	0.084
HCM Control Delay (s)	14.6	13.6	10.4	7.4	-	-	8.4	-	-	10.7
HCM Lane LOS	B	B	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0	0.1	0	-	-	0.1	-	-	0.3

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	189	81	6	26	9
Future Vol, veh/h	9	189	81	6	26	9
Conflicting Peds, #/hr	0	0	0	3	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	110	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	2	2	2	1	1
Mvmt Flow	10	205	88	7	28	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	98	0	-	0	218	51
Stage 1	-	-	-	-	95	-
Stage 2	-	-	-	-	123	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	1500	-	-	-	753	1009
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	892	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1496	-	-	-	743	1006
Mov Cap-2 Maneuver	-	-	-	-	743	-
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	889	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1496	-	-	-	797
HCM Lane V/C Ratio	0.007	-	-	-	0.048
HCM Control Delay (s)	7.4	-	-	-	9.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	27	188	68	40	118	19
Future Vol, veh/h	27	188	68	40	118	19
Conflicting Peds, #/hr	0	4	0	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	140	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	207	75	44	130	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	342	152	158	0	-	0
Stage 1	148	-	-	-	-	-
Stage 2	194	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	654	894	1422	-	-	-
Stage 1	880	-	-	-	-	-
Stage 2	839	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	611	885	1413	-	-	-
Mov Cap-2 Maneuver	611	-	-	-	-	-
Stage 1	827	-	-	-	-	-
Stage 2	833	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	4.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1413	-	611	885	-	-
HCM Lane V/C Ratio	0.053	-	0.049	0.233	-	-
HCM Control Delay (s)	7.7	-	11.2	10.3	-	-
HCM Lane LOS	A	-	B	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	0.9	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	102	0	0	307
Future Vol, veh/h	0	0	102	0	0	307
Conflicting Peds, #/hr	0	0	0	2	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	0	117	0	0	353

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	119	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	938	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	936	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	97	0	0	308
Future Vol, veh/h	0	0	97	0	0	308
Conflicting Peds, #/hr	0	0	0	2	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	140	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	0	111	0	0	354

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	467	113	0	0	113	0
Stage 1	113	-	-	-	-	-
Stage 2	354	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	558	945	-	-	1489	-
Stage 1	917	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	557	943	-	-	1486	-
Mov Cap-2 Maneuver	557	-	-	-	-	-
Stage 1	915	-	-	-	-	-
Stage 2	715	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	-	1486	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

HCM 2010 AWSC
18: SOMO Ave/Valley House Dr & Bodway Pkwy 04/02/2019

Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	39	140	91	294	15
Future Vol, veh/h	1	39	140	91	294	15
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	45	161	105	338	17
Number of Lanes	0	1	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	9.3	9.6	15
HCM LOS	A	A	B

Lane	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	3%	0%	0%	100%	0%
Vol Thru, %	97%	100%	0%	0%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	140	91	294	15
LT Vol	1	0	0	294	0
Through Vol	39	140	0	0	0
RT Vol	0	0	91	0	15
Lane Flow Rate	46	161	105	338	17
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.073	0.252	0.143	0.546	0.022
Departure Headway (Hd)	5.739	5.643	4.936	5.813	4.608
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	619	634	723	618	770
Service Time	3.822	3.4	2.694	3.583	2.377
HCM Lane V/C Ratio	0.074	0.254	0.145	0.547	0.022
HCM Control Delay	9.3	10.3	8.5	15.4	7.5
HCM Lane LOS	A	B	A	C	A
HCM 95th-tile Q	0.2	1	0.5	3.3	0.1

HCM 2010 Signalized Intersection Summary
19: Petaluma Hill Rd & Valley House Dr 04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	0	309	1	0	2	177	756	4	8	760	77
Future Volume (veh/h)	50	0	309	1	0	2	177	756	4	8	760	77
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	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	55	0	96	1	0	0	195	831	4	9	835	81
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	0	139	3	0	0	239	1113	5	16	885	752
Arrive On Green	0.09	0.00	0.09	0.00	0.00	0.00	0.13	0.60	0.60	0.01	0.48	0.48
Sat Flow, veh/h	1774	0	1583	1774	0	0	1774	1852	9	1774	1863	1582
Grp Volume(v), veh/h	55	0	96	1	0	0	195	0	835	9	835	81
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	0	1774	0	1861	1774	1863	1582
Q Serve(g_s), s	1.8	0.0	3.7	0.0	0.0	0.0	6.8	0.0	20.6	0.3	27.0	1.8
Cycle Q Clear(g_c), s	1.8	0.0	3.7	0.0	0.0	0.0	6.8	0.0	20.6	0.3	27.0	1.8
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	156	0	139	3	0	0	239	0	1118	16	885	752
V/C Ratio(X)	0.35	0.00	0.69	0.34	0.00	0.00	0.82	0.00	0.75	0.55	0.94	0.11
Avail Cap(c_a), veh/h	617	0	551	294	0	0	449	0	1368	112	1016	863
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	0.0	28.0	31.5	0.0	0.0	26.6	0.0	9.1	31.2	15.8	9.2
Incr Delay (d2), s/veh	0.5	0.0	2.3	44.3	0.0	0.0	2.6	0.0	1.3	10.2	14.5	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	0.9	0.0	1.7	0.1	0.0	0.0	3.5	0.0	10.9	0.2	17.2	0.8
LnGrp Delay(d),s/veh	27.6	0.0	30.3	75.9	0.0	0.0	29.2	0.0	10.5	41.4	30.3	9.2
LnGrp LOS	C		C	E			C		B	D	C	A
Approach Vol, veh/h		151			1			1030			925	
Approach Delay, s/veh		29.3			75.9			14.0			28.5	
Approach LOS		C			E			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.6	43.5		9.6	12.5	35.6		5.6
Change Period (Y+Rc), s	4.0	5.5		4.0	4.0	5.5		5.5
Max Green Setting (Gmax), s	4.6	46.5		22.0	16.0	34.5		10.5
Max Q Clear Time (g_c+I1), s	2.3	22.6		5.7	8.8	29.0		2.0
Green Ext Time (p_c), s	0.0	1.7		0.3	0.0	1.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	21.5
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	32	31	7	25	28	27	253	5	15	540	39
Future Vol, veh/h	23	32	31	7	25	28	27	253	5	15	540	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	36	35	8	28	31	30	284	6	17	607	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1040	1013	629	1046	1032	287	651	0	0	290	0	0
Stage 1	663	663	-	347	347	-	-	-	-	-	-	-
Stage 2	377	350	-	699	685	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	208	239	482	206	233	752	935	-	-	1272	-	-
Stage 1	450	459	-	669	635	-	-	-	-	-	-	-
Stage 2	644	633	-	430	448	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	174	228	482	162	223	752	935	-	-	1272	-	-
Mov Cap-2 Maneuver	174	228	-	162	223	-	-	-	-	-	-	-
Stage 1	436	453	-	648	615	-	-	-	-	-	-	-
Stage 2	570	613	-	362	442	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27.5	19.7	0.9	0.2
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	935	-	-	255	312	1272	-	-
HCM Lane V/C Ratio	0.032	-	-	0.379	0.216	0.013	-	-
HCM Control Delay (s)	9	-	-	27.5	19.7	7.9	-	-
HCM Lane LOS	A	-	-	D	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.7	0.8	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	67	70	0	0	0
Future Vol, veh/h	0	67	70	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	0	77	80	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	80	0	-	0	157	80
Stage 1	-	-	-	-	80	-
Stage 2	-	-	-	-	77	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1524	-	-	-	837	983
Stage 1	-	-	-	-	946	-
Stage 2	-	-	-	-	949	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1524	-	-	-	837	983
Mov Cap-2 Maneuver	-	-	-	-	837	-
Stage 1	-	-	-	-	946	-
Stage 2	-	-	-	-	949	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1524	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 2010 TWSC
22: Petaluma Hill Rd & E Railroad Ave 04/02/2019

Intersection												
Int Delay, s/veh	19											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	0	12	1	1	10	12	881	0	33	985	57
Future Vol, veh/h	55	0	12	1	1	10	12	881	0	33	985	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	0	13	1	1	11	13	937	0	35	1048	61

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2087	2081	1048	2118	2142	937	1109	0	0	937	0	0
Stage 1	1118	1118	-	963	963	-	-	-	-	-	-	-
Stage 2	969	963	-	1155	1179	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 39	53	277	37	49	321	630	-	-	731	-	-
Stage 1	251	282	-	307	334	-	-	-	-	-	-	-
Stage 2	305	334	-	240	264	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 35	49	277	33	46	321	630	-	-	731	-	-
Mov Cap-2 Maneuver	~ 35	49	-	33	46	-	-	-	-	-	-	-
Stage 1	246	268	-	301	327	-	-	-	-	-	-	-
Stage 2	288	327	-	218	251	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 569.3	32.4	0.1	0.3
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	630	-	-	41	144	731	-	-
HCM Lane V/C Ratio	0.02	-	-	1.738	0.089	0.048	-	-
HCM Control Delay (s)	10.8	-	-	$ 569.3	32.4	10.2	-	-
HCM Lane LOS	B	-	-	F	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	7.4	0.3	0.2	-	-

Notes

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

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd 04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	147	12	18	58	430	9	348	6	420	494	13
Future Volume (veh/h)	25	147	12	18	58	430	9	348	6	420	494	13
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		0.98	1.00		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	1976	1937	1976	1976	1937	1976	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	27	160	10	20	63	369	10	378	4	457	537	13
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	440	25	55	80	403	11	424	4	568	580	14
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.23	0.23	0.23	0.32	0.32	0.32
Sat Flow, veh/h	123	1494	86	36	271	1368	49	1862	20	1774	1811	44
Grp Volume(v), veh/h	197	0	0	452	0	0	392	0	0	457	0	550
Grp Sat Flow(s),veh/h/ln	1703	0	0	1676	0	0	1931	0	0	1774	0	1855
Q Serve(g_s), s	0.0	0.0	0.0	9.6	0.0	0.0	16.8	0.0	0.0	20.2	0.0	24.5
Cycle Q Clear(g_c), s	6.9	0.0	0.0	22.3	0.0	0.0	16.8	0.0	0.0	20.2	0.0	24.5
Prop In Lane	0.14		0.05	0.04		0.82	0.03		0.01	1.00		0.02
Lane Grp Cap(c), veh/h	549	0	0	537	0	0	440	0	0	568	0	594
V/C Ratio(X)	0.36	0.00	0.00	0.84	0.00	0.00	0.89	0.00	0.00	0.80	0.00	0.93
Avail Cap(c_a), veh/h	833	0	0	814	0	0	507	0	0	715	0	747
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.8	0.0	0.0	29.1	0.0	0.0	32.0	0.0	0.0	26.7	0.0	28.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	3.1	0.0	0.0	15.7	0.0	0.0	4.2	0.0	13.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	0.0	10.8	0.0	0.0	10.8	0.0	0.0	10.6	0.0	14.8
LnGrp Delay(d),s/veh	23.9	0.0	0.0	32.2	0.0	0.0	47.7	0.0	0.0	30.9	0.0	42.0
LnGrp LOS	C			C			D			C		D
Approach Vol, veh/h		197			452			392			1007	
Approach Delay, s/veh		23.9			32.2			47.7			36.9	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		24.0		29.7		31.9		29.7
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		22.5		39.5		34.5		39.5
Max Q Clear Time (g_c+I1), s		18.8		8.9		26.5		24.3
Green Ext Time (p_c), s		0.7		0.4		0.9		0.9

Intersection Summary		
HCM 2010 Ctrl Delay	36.7	
HCM 2010 LOS	D	

HCM 2010 Signalized Intersection Summary
24: N McDowell Blvd & Old Redwood Hwy

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	592	714	109	532	17	388	61	74	7	23	45
Future Volume (veh/h)	220	592	714	109	532	17	388	61	74	7	23	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	229	617	0	114	554	14	450	0	29	7	24	1
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	218	874	654	698	1849	47	597	0	264	116	122	103
Arrive On Green	0.21	0.41	0.00	0.39	0.52	0.52	0.17	0.00	0.17	0.07	0.07	0.07
Sat Flow, veh/h	1774	3539	1583	1774	3527	89	3548	0	1566	1774	1863	1571
Grp Volume(v), veh/h	229	617	0	114	278	290	450	0	29	7	24	1
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1847	1774	0	1566	1774	1863	1571
Q Serve(g_s), s	16.0	18.8	0.0	5.4	11.5	11.5	15.7	0.0	2.0	0.5	1.6	0.1
Cycle Q Clear(g_c), s	16.0	18.8	0.0	5.4	11.5	11.5	15.7	0.0	2.0	0.5	1.6	0.1
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	218	874	654	698	928	968	597	0	264	116	122	103
V/C Ratio(X)	1.05	0.71	0.00	0.16	0.30	0.30	0.75	0.00	0.11	0.06	0.20	0.01
Avail Cap(c_a), veh/h	218	874	654	698	928	968	1048	0	463	424	446	376
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.6	34.3	0.0	25.6	17.5	17.5	51.5	0.0	45.8	57.0	57.5	56.8
Incr Delay (d2), s/veh	69.1	4.0	0.0	0.0	0.8	0.8	0.7	0.0	0.1	0.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	9.6	0.0	2.7	5.8	6.1	7.7	0.0	0.9	0.2	0.8	0.0
LnGrp Delay(d),s/veh	120.7	38.3	0.0	25.6	18.3	18.3	52.2	0.0	45.9	57.1	57.8	56.8
LnGrp LOS	F	D		C	B	B	D		D	E	E	E
Approach Vol, veh/h		846			682			479			32	
Approach Delay, s/veh		60.6			19.5			51.8			57.6	
Approach LOS		E			B			D			E	

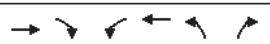
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.1	36.0		12.4	20.0	72.1		25.5
Change Period (Y+Rc), s	5.0	* 5		* 4.7	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	* 31		* 30	16.0	28.0		37.0
Max Q Clear Time (g_c+I1), s	17.7	20.8		3.6	18.0	13.5		17.7
Green Ext Time (p_c), s	0.1	4.1		0.1	0.0	4.4		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	44.8
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
25: US 101 NB Off-ramp & Old Redwood Hwy

04/02/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1069	378	0	966	122	465
Future Volume (veh/h)	1069	378	0	966	122	465
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	1091	0	0	986	124	356
Adj No. of Lanes	2	1	0	2	2	2
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2447	1095	0	2447	617	500
Arrive On Green	0.69	0.00	0.00	0.92	0.18	0.18
Sat Flow, veh/h	3632	1583	0	3725	3442	2787
Grp Volume(v), veh/h	1091	0	0	986	124	356
Grp Sat Flow(s),veh/h/ln	1770	1583	0	1770	1721	1393
Q Serve(g_s), s	8.9	0.0	0.0	2.3	2.0	7.8
Cycle Q Clear(g_c), s	8.9	0.0	0.0	2.3	2.0	7.8
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2447	1095	0	2447	617	500
V/C Ratio(X)	0.45	0.00	0.00	0.40	0.20	0.71
Avail Cap(c_a), veh/h	2447	1095	0	2447	932	755
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.91	1.00	1.00
Uniform Delay (d), s/veh	4.5	0.0	0.0	0.9	22.7	25.1
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.5	0.2	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	0.0	1.0	1.0	3.1
LnGrp Delay(d),s/veh	5.1	0.0	0.0	1.4	22.9	27.0
LnGrp LOS	A			A	C	C
Approach Vol, veh/h	1091			986	480	
Approach Delay, s/veh	5.1			1.4	25.9	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		48.9				48.9		16.1
Change Period (Y+Rc), s		5.1				5.1		5.1
Max Green Setting (Gmax), s		37.9				37.9		16.9
Max Q Clear Time (g_c+I1), s		10.9				4.3		9.8
Green Ext Time (p_c), s		12.0				11.7		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	7.5
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1: Snyder Ln & Rohnert Park Expwy

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	274	300	261	39	166	85	240	362	59	160	403	245
Future Volume (veh/h)	274	300	261	39	166	85	240	362	59	160	403	245
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		0.98	1.00		0.98	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	315	345	286	45	191	93	276	416	65	184	463	268
Adj No. of Lanes	2	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	498	701	556	166	520	455	539	1166	648	491	1117	711
Arrive On Green	0.14	0.20	0.20	0.09	0.15	0.15	0.16	0.33	0.33	0.14	0.32	0.32
Sat Flow, veh/h	3442	3539	1558	1774	3539	1559	3442	3539	1519	3442	3539	1528
Grp Volume(v), veh/h	315	345	286	45	191	93	276	416	65	184	463	268
Grp Sat Flow(s),veh/h/ln	1721	1770	1558	1774	1770	1559	1721	1770	1519	1721	1770	1528
Q Serve(g_s), s	7.1	7.2	12.0	2.0	4.0	3.7	6.1	7.4	2.1	4.0	8.5	9.5
Cycle Q Clear(g_c), s	7.1	7.2	12.0	2.0	4.0	3.7	6.1	7.4	2.1	4.0	8.5	9.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	498	701	556	166	520	455	539	1166	648	491	1117	711
V/C Ratio(X)	0.63	0.49	0.51	0.27	0.37	0.20	0.51	0.36	0.10	0.37	0.41	0.38
Avail Cap(c_a), veh/h	623	1934	1099	321	1929	1076	623	1929	976	623	1929	1062
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	29.5	21.1	35.0	31.9	22.3	32.1	21.1	14.4	32.2	22.3	14.6
Incr Delay (d2), s/veh	0.6	0.2	0.3	0.3	0.2	0.1	0.3	0.1	0.0	0.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	3.5	5.2	1.0	2.0	1.6	2.9	3.6	0.9	1.9	4.2	4.0
LnGrp Delay(d),s/veh	34.0	29.7	21.4	35.3	32.1	22.3	32.3	21.2	14.5	32.4	22.4	14.8
LnGrp LOS	C	C	C	D	C	C	C	C	B	C	C	B
Approach Vol, veh/h		946			329			757			915	
Approach Delay, s/veh		28.6			29.7			24.7			22.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.8	33.1	11.7	22.2	17.0	32.0	16.0	18.0
Change Period (Y+Rc), s	4.0	5.8	4.0	* 5.8	4.0	5.8	4.0	* 5.8
Max Green Setting (Gmax), s	15.0	45.2	15.0	* 45	15.0	45.2	15.0	* 45
Max Q Clear Time (g_c+I1), s	6.0	9.4	4.0	14.0	8.1	11.5	9.1	6.0
Green Ext Time (p_c), s	0.1	0.9	0.0	0.9	0.1	1.1	0.1	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	25.7
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
2: US 101 SB Ramps & Gravenstein Hwy

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	501	255	254	743	0	0	0	0	376	0	250
Future Volume (veh/h)	0	501	255	254	743	0	0	0	0	376	0	250
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	0	1863	1937	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	522	172	265	774	0				392	0	153
Adj No. of Lanes	0	2	1	1	2	0				2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1142	523	718	2720	0				515	0	232
Arrive On Green	0.00	0.32	0.32	0.81	1.00	0.00				0.15	0.00	0.15
Sat Flow, veh/h	0	3632	1622	1774	3632	0				3442	0	1553
Grp Volume(v), veh/h	0	522	172	265	774	0				392	0	153
Grp Sat Flow(s),veh/h/ln	0	1770	1622	1774	1770	0				1721	0	1553
Q Serve(g_s), s	0.0	12.9	8.8	4.5	0.0	0.0				12.0	0.0	10.2
Cycle Q Clear(g_c), s	0.0	12.9	8.8	4.5	0.0	0.0				12.0	0.0	10.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1142	523	718	2720	0				515	0	232
V/C Ratio(X)	0.00	0.46	0.33	0.37	0.28	0.00				0.76	0.00	0.66
Avail Cap(c_a), veh/h	0	1142	523	718	2720	0				829	0	374
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.90	0.90	0.96	0.96	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	29.6	28.2	6.6	0.0	0.0				44.9	0.0	44.1
Incr Delay (d2), s/veh	0.0	1.2	1.5	0.1	0.3	0.0				0.9	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.5	4.2	2.1	0.1	0.0				5.8	0.0	4.5
LnGrp Delay(d),s/veh	0.0	30.8	29.7	6.8	0.3	0.0				45.8	0.0	45.3
LnGrp LOS		C	C	A	A					D		D
Approach Vol, veh/h		694			1039						545	
Approach Delay, s/veh		30.5			1.9						45.6	
Approach LOS		C			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	9.0	40.0		21.0		89.0		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	4.5	35.5		26.5		74.5		
Max Q Clear Time (g_c+I1), s	6.5	14.9		14.0		2.0		
Green Ext Time (p_c), s	0.2	3.9		2.4		5.3		

Intersection Summary	
HCM 2010 Ctrl Delay	21.1
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
3: US 101 NB Off-ramp & Gravenstein Hwy

07/30/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	876	0	0	714	280	90
Future Volume (veh/h)	876	0	0	714	280	90
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863
Adj Flow Rate, veh/h	912	0	0	744	292	69
Adj No. of Lanes	2	0	0	3	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	2788	0	0	4006	449	207
Arrive On Green	0.53	0.00	0.00	0.79	0.13	0.13
Sat Flow, veh/h	3725	0	0	5421	3442	1583
Grp Volume(v), veh/h	912	0	0	744	292	69
Grp Sat Flow(s),veh/h/ln	1770	0	0	1695	1721	1583
Q Serve(g_s), s	16.2	0.0	0.0	4.0	8.9	4.4
Cycle Q Clear(g_c), s	16.2	0.0	0.0	4.0	8.9	4.4
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2788	0	0	4006	449	207
V/C Ratio(X)	0.33	0.00	0.00	0.19	0.65	0.33
Avail Cap(c_a), veh/h	2788	0	0	4006	1173	540
HCM Platoon Ratio	0.67	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.00	0.00	0.76	1.00	1.00
Uniform Delay (d), s/veh	9.3	0.0	0.0	2.9	45.4	43.5
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	1.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	0.0	0.0	1.9	4.3	2.0
LnGrp Delay(d),s/veh	9.6	0.0	0.0	3.0	47.0	44.4
LnGrp LOS	A			A	D	D
Approach Vol, veh/h	912			744	361	
Approach Delay, s/veh	9.6			3.0	46.5	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		91.2				91.2		18.8
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		63.5				63.5		37.5
Max Q Clear Time (g_c+I1), s		18.2				6.0		10.9
Green Ext Time (p_c), s		14.0				10.9		3.5

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Old Redwood Hwy & Gravenstein Hwy/Gravenstein Way

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	422	61	471	47	85	55	260	631	23	20	95	364
Future Volume (veh/h)	422	61	471	47	85	55	260	631	23	20	95	364
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	435	63	0	48	88	46	268	651	15	21	98	359
Adj No. of Lanes	2	1	1	1	1	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	661	358	304	183	118	62	413	844	19	378	396	641
Arrive On Green	0.19	0.19	0.00	0.10	0.10	0.10	0.23	0.23	0.23	0.21	0.21	0.21
Sat Flow, veh/h	3442	1863	1583	1774	1147	600	1774	3624	83	1774	1863	1583
Grp Volume(v), veh/h	435	63	0	48	0	134	268	334	332	21	98	359
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	0	1747	1774	1863	1845	1774	1863	1583
Q Serve(g_s), s	7.9	1.9	0.0	1.7	0.0	5.0	9.2	11.3	11.3	0.6	3.0	11.8
Cycle Q Clear(g_c), s	7.9	1.9	0.0	1.7	0.0	5.0	9.2	11.3	11.3	0.6	3.0	11.8
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	661	358	304	183	0	180	413	434	429	378	396	641
V/C Ratio(X)	0.66	0.18	0.00	0.26	0.00	0.74	0.65	0.77	0.77	0.06	0.25	0.56
Avail Cap(c_a), veh/h	1249	676	575	631	0	621	499	524	519	657	690	891
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	22.8	0.0	27.9	0.0	29.4	23.4	24.2	24.2	21.2	22.1	15.5
Incr Delay (d2), s/veh	0.4	0.1	0.0	0.3	0.0	2.3	1.2	4.5	4.6	0.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	1.0	0.0	0.8	0.0	2.5	4.6	6.3	6.3	0.3	1.5	6.6
LnGrp Delay(d),s/veh	25.6	22.9	0.0	28.2	0.0	31.7	24.6	28.7	28.8	21.2	22.2	15.7
LnGrp LOS	C	C		C		C	C	C	C	C	C	B
Approach Vol, veh/h		498			182			934			478	
Approach Delay, s/veh		25.3			30.8			27.5			17.3	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		17.5		18.9		11.0		20.2
Change Period (Y+Rc), s		4.5		4.5		4.0		4.5
Max Green Setting (Gmax), s		24.5		25.0		24.0		19.0
Max Q Clear Time (g_c+I1), s		9.9		13.8		7.0		13.3
Green Ext Time (p_c), s		2.4		0.6		0.2		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	24.9
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	215	5	18	367	505	4	335	3	294	270	47
Future Volume (veh/h)	71	215	5	18	367	505	4	335	3	294	270	47
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	74	224	3	19	382	479	4	349	2	306	281	44
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	705	586	31	607	541	8	522	3	350	629	527
Arrive On Green	0.05	0.38	0.38	0.02	0.34	0.34	0.00	0.14	0.14	0.20	0.34	0.34
Sat Flow, veh/h	1774	1863	1548	1774	1770	1579	1774	3607	21	1774	1863	1559
Grp Volume(v), veh/h	74	224	3	19	382	479	4	171	180	306	281	44
Grp Sat Flow(s),veh/h/ln	1774	1863	1548	1774	1770	1579	1774	1770	1858	1774	1863	1559
Q Serve(g_s), s	2.8	5.8	0.1	0.7	12.4	19.7	0.2	6.3	6.3	11.5	8.1	1.3
Cycle Q Clear(g_c), s	2.8	5.8	0.1	0.7	12.4	19.7	0.2	6.3	6.3	11.5	8.1	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	94	705	586	31	607	541	8	256	269	350	629	527
V/C Ratio(X)	0.78	0.32	0.01	0.60	0.63	0.88	0.53	0.67	0.67	0.87	0.45	0.08
Avail Cap(c_a), veh/h	194	870	723	139	773	690	103	824	866	581	1369	1146
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	15.1	13.3	33.5	18.9	21.3	34.1	27.8	27.8	26.7	17.7	15.5
Incr Delay (d2), s/veh	5.2	0.1	0.0	6.8	0.4	9.5	19.4	1.1	1.1	4.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.0	0.0	0.4	6.1	9.9	0.1	3.1	3.3	6.0	4.2	0.6
LnGrp Delay(d),s/veh	37.4	15.2	13.3	40.3	19.3	30.8	53.5	28.9	28.9	31.0	17.9	15.5
LnGrp LOS	D	B	B	D	B	C	D	C	C	C	B	B
Approach Vol, veh/h		301			880			355			631	
Approach Delay, s/veh		20.6			26.0			29.2			24.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	30.5	4.8	27.7	8.2	28.0	18.1	14.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.4	32.1	4.0	50.5	7.5	30.0	22.5	32.0
Max Q Clear Time (g_c+I1), s	2.2	7.8	2.2	10.1	4.8	21.7	13.5	8.3
Green Ext Time (p_c), s	0.0	0.4	0.0	0.5	0.0	1.7	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	25.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave
07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	215	5	18	367	505	4	335	3	294	270	47
Future Volume (veh/h)	71	215	5	18	367	505	4	335	3	294	270	47
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	74	224	3	19	382	479	4	349	2	306	281	44
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	593	492	32	528	766	8	548	3	357	650	539
Arrive On Green	0.05	0.32	0.32	0.02	0.28	0.28	0.00	0.15	0.15	0.20	0.35	0.35
Sat Flow, veh/h	1774	1863	1547	1774	1863	1578	1774	3607	21	1774	1863	1543
Grp Volume(v), veh/h	74	224	3	19	382	479	4	171	180	306	281	44
Grp Sat Flow(s),veh/h/ln	1774	1863	1547	1774	1863	1578	1774	1770	1858	1774	1863	1543
Q Serve(g_s), s	2.4	5.4	0.1	0.6	10.7	13.0	0.1	5.3	5.3	9.7	6.7	1.1
Cycle Q Clear(g_c), s	2.4	5.4	0.1	0.6	10.7	13.0	0.1	5.3	5.3	9.7	6.7	1.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	94	593	492	32	528	766	8	269	282	357	650	539
V/C Ratio(X)	0.79	0.38	0.01	0.59	0.72	0.62	0.52	0.64	0.64	0.86	0.43	0.08
Avail Cap(c_a), veh/h	199	999	830	165	963	1135	122	976	1025	719	1654	1370
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.2	15.3	13.5	28.3	18.7	11.0	28.8	23.1	23.1	22.4	14.5	12.7
Incr Delay (d2), s/veh	5.5	0.1	0.0	6.2	0.7	0.3	19.1	0.9	0.9	2.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.8	0.0	0.4	5.6	5.6	0.1	2.6	2.8	4.9	3.5	0.5
LnGrp Delay(d),s/veh	32.6	15.5	13.5	34.5	19.4	11.4	47.9	24.0	24.0	24.7	14.6	12.7
LnGrp LOS	C	B	B	C	B	B	D	C	C	C	B	B
Approach Vol, veh/h		301			880			355			631	
Approach Delay, s/veh		19.7			15.4			24.3			19.4	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	23.0	4.7	24.7	7.6	21.0	16.2	13.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.4	31.1	4.0	51.5	6.5	30.0	23.5	32.0
Max Q Clear Time (g_c+I1), s	2.6	7.4	2.1	8.7	4.4	15.0	11.7	7.3
Green Ext Time (p_c), s	0.0	0.4	0.0	0.5	0.0	1.0	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	18.6
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	52.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	569	76	34	925	7	136	0	43	1	0	2
Future Vol, veh/h	6	569	76	34	925	7	136	0	43	1	0	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	605	81	36	984	7	145	0	46	1	0	2
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	22.3	80.1	17.2	11.4
HCM LOS	C	F	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	76%	100%	0%	0%	100%	0%	0%	33%
Vol Thru, %	0%	0%	100%	71%	0%	100%	98%	0%
Vol Right, %	24%	0%	0%	29%	0%	0%	2%	67%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	179	6	379	266	34	617	315	3
LT Vol	136	6	0	0	34	0	0	1
Through Vol	0	0	379	190	0	617	308	0
RT Vol	43	0	0	76	0	0	7	2
Lane Flow Rate	190	6	404	283	36	656	335	3
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.428	0.013	0.743	0.504	0.069	1.166	0.595	0.007
Departure Headway (Hd)	8.354	7.388	6.878	6.673	6.908	6.399	6.383	8.603
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	434	487	529	543	519	571	567	418
Service Time	6.054	5.088	4.578	4.373	4.647	4.138	4.122	6.303
HCM Lane V/C Ratio	0.438	0.012	0.764	0.521	0.069	1.149	0.591	0.007
HCM Control Delay	17.2	10.2	26.9	16	10.2	115.6	18.1	11.4
HCM Lane LOS	C	B	D	C	B	F	C	B
HCM 95th-tile Q	2.1	0	6.3	2.8	0.2	22.5	3.9	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	569	76	34	925	7	136	0	43	1	0	2
Future Volume (veh/h)	6	569	76	34	925	7	136	0	43	1	0	2
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1976	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	6	605	81	36	984	7	145	0	46	1	0	2
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	403	1285	172	498	1480	11	488	16	77	253	60	233
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.22	0.00	0.22	0.22	0.00	0.22
Sat Flow, veh/h	565	3126	418	751	3601	26	1038	72	352	255	275	1060
Grp Volume(v), veh/h	6	342	344	36	484	507	191	0	0	3	0	0
Grp Sat Flow(s),veh/h/ln	565	1770	1774	751	1770	1857	1462	0	0	1591	0	0
Q Serve(g_s), s	0.2	3.4	3.5	0.9	5.4	5.4	2.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.6	3.4	3.5	4.3	5.4	5.4	2.8	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.24	1.00		0.01	0.76		0.24	0.33		0.67
Lane Grp Cap(c), veh/h	403	727	729	498	727	763	581	0	0	546	0	0
V/C Ratio(X)	0.01	0.47	0.47	0.07	0.66	0.66	0.33	0.00	0.00	0.01	0.00	0.00
Avail Cap(c_a), veh/h	1575	4398	4410	2056	4398	4616	2074	0	0	2092	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.1	5.2	5.2	6.8	5.8	5.8	8.5	0.0	0.0	7.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.4	0.4	0.1	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	1.6	1.7	0.2	2.6	2.8	1.1	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	8.1	5.4	5.4	6.9	6.2	6.2	8.6	0.0	0.0	7.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A			A		
Approach Vol, veh/h		692			1027			191			3	
Approach Delay, s/veh		5.4			6.2			8.6			7.4	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		14.5		9.8		14.5		9.8
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		60.5		30.5		60.5		30.5
Max Q Clear Time (g_c+I1), s		7.6		2.0		7.4		4.8
Green Ext Time (p_c), s		1.6		0.0		2.2		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	6.2
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave 07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	566	296	66	366	45	348	174	143	60	161	126
Future Volume (veh/h)	105	566	296	66	366	45	348	174	143	60	161	126
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.96	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	117	629	280	73	407	36	387	193	59	67	179	39
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	186	711	316	179	1015	89	335	462	384	201	255	55
Arrive On Green	0.10	0.30	0.30	0.10	0.31	0.31	0.19	0.25	0.25	0.11	0.17	0.17
Sat Flow, veh/h	1774	2363	1052	1774	3279	288	1774	1863	1547	1774	1475	321
Grp Volume(v), veh/h	117	471	438	73	219	224	387	193	59	67	0	218
Grp Sat Flow(s),veh/h/ln	1774	1770	1646	1774	1770	1798	1774	1863	1547	1774	0	1796
Q Serve(g_s), s	5.0	20.1	20.1	3.1	7.7	7.8	15.0	6.9	2.4	2.8	0.0	9.1
Cycle Q Clear(g_c), s	5.0	20.1	20.1	3.1	7.7	7.8	15.0	6.9	2.4	2.8	0.0	9.1
Prop In Lane	1.00		0.64	1.00		0.16	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	186	532	495	179	548	556	335	462	384	201	0	310
V/C Ratio(X)	0.63	0.88	0.88	0.41	0.40	0.40	1.15	0.42	0.15	0.33	0.00	0.70
Avail Cap(c_a), veh/h	223	649	603	223	671	682	335	753	626	223	0	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.1	26.4	26.4	33.5	21.6	21.6	32.2	25.0	23.3	32.4	0.0	30.9
Incr Delay (d2), s/veh	2.0	10.7	11.4	0.6	0.2	0.2	98.0	0.2	0.1	0.4	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	11.4	10.7	1.5	3.8	3.9	16.4	3.6	1.0	1.4	0.0	4.6
LnGrp Delay(d),s/veh	36.1	37.1	37.8	34.0	21.8	21.8	130.2	25.3	23.4	32.8	0.0	32.0
LnGrp LOS	D	D	D	C	C	C	F	C	C	C		C
Approach Vol, veh/h		1026			516			639			285	
Approach Delay, s/veh		37.3			23.5			88.6			32.2	
Approach LOS		D			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	28.8	19.0	18.6	12.3	29.5	13.0	24.6
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	8.0	29.1	15.0	27.1	10.0	30.1	10.0	32.1
Max Q Clear Time (g_c+I1), s	15.1	22.1	17.0	11.1	7.0	9.8	4.8	8.9
Green Ext Time (p_c), s	0.0	1.4	0.0	0.4	0.0	0.8	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	47.1
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave 07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	566	296	66	366	45	348	174	143	60	161	126
Future Volume (veh/h)	105	566	296	66	366	45	348	174	143	60	161	126
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.96	0.99		0.98	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	117	629	280	73	407	36	387	193	59	67	179	39
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	717	319	176	1025	90	501	524	436	432	253	55
Arrive On Green	0.10	0.30	0.30	0.10	0.31	0.31	0.20	0.28	0.28	0.09	0.17	0.17
Sat Flow, veh/h	1774	2364	1052	1774	3279	288	1774	1863	1549	1774	1474	321
Grp Volume(v), veh/h	117	471	438	73	219	224	387	193	59	67	0	218
Grp Sat Flow(s),veh/h/ln	1774	1770	1646	1774	1770	1798	1774	1863	1549	1774	0	1796
Q Serve(g_s), s	5.2	20.6	20.6	3.2	7.9	8.0	13.9	6.8	2.3	2.4	0.0	9.4
Cycle Q Clear(g_c), s	5.2	20.6	20.6	3.2	7.9	8.0	13.9	6.8	2.3	2.4	0.0	9.4
Prop In Lane	1.00		0.64	1.00		0.16	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	182	537	500	176	553	562	501	524	436	432	0	308
V/C Ratio(X)	0.64	0.88	0.88	0.42	0.40	0.40	0.77	0.37	0.14	0.16	0.00	0.71
Avail Cap(c_a), veh/h	326	804	747	217	717	729	740	1028	855	474	0	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.2	27.0	27.0	34.6	22.0	22.1	20.5	23.5	21.9	23.4	0.0	31.9
Incr Delay (d2), s/veh	1.4	5.2	5.6	0.6	0.2	0.2	1.5	0.2	0.1	0.1	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	10.8	10.1	1.6	3.9	4.0	6.9	3.5	1.0	1.2	0.0	4.7
LnGrp Delay(d),s/veh	36.6	32.2	32.6	35.2	22.2	22.2	22.0	23.7	22.0	23.5	0.0	33.0
LnGrp LOS	D	C	C	D	C	C	C	C	C	C		C
Approach Vol, veh/h		1026			516			639			285	
Approach Delay, s/veh		32.9			24.0			22.5			30.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	29.7	20.0	18.9	12.4	30.4	11.0	27.9
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	8.0	37.1	27.0	27.1	15.0	33.1	9.0	45.1
Max Q Clear Time (g_c+I1), s	15.2	22.6	15.9	11.4	7.2	10.0	4.4	8.8
Green Ext Time (p_c), s	0.0	1.9	0.1	0.4	0.0	0.8	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	28.1
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	506	37	9	148	156	76	204	21	321	176	238
Future Volume (veh/h)	216	506	37	9	148	156	76	204	21	321	176	238
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	3	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.95	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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	248	582	29	10	170	107	87	234	11	369	202	136
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	1126	681	40	628	646	221	622	29	416	542	711
Arrive On Green	0.16	0.32	0.32	0.02	0.18	0.18	0.13	0.18	0.18	0.23	0.29	0.29
Sat Flow, veh/h	1774	3539	1520	1774	3539	1549	1774	3434	160	1774	1863	1557
Grp Volume(v), veh/h	248	582	29	10	170	107	87	120	125	369	202	136
Grp Sat Flow(s),veh/h/ln	1774	1770	1520	1774	1770	1549	1774	1770	1825	1774	1863	1557
Q Serve(g_s), s	9.9	9.7	0.8	0.4	3.0	3.2	3.3	4.3	4.4	14.7	6.3	3.8
Cycle Q Clear(g_c), s	9.9	9.7	0.8	0.4	3.0	3.2	3.3	4.3	4.4	14.7	6.3	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	290	1126	681	40	628	646	221	321	331	416	542	711
V/C Ratio(X)	0.86	0.52	0.04	0.25	0.27	0.17	0.39	0.37	0.38	0.89	0.37	0.19
Avail Cap(c_a), veh/h	489	1859	997	367	1615	1072	489	710	732	489	747	883
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	20.3	11.6	35.1	26.0	13.6	29.4	26.3	26.3	27.3	20.6	11.9
Incr Delay (d2), s/veh	3.3	0.1	0.0	1.2	0.1	0.0	0.4	0.3	0.3	14.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	4.8	0.3	0.2	1.5	1.4	1.6	2.1	2.2	9.6	3.2	1.6
LnGrp Delay(d),s/veh	33.0	20.5	11.6	36.3	26.1	13.6	29.8	26.5	26.6	45.1	20.8	12.0
LnGrp LOS	C	C	B	D	C	B	C	C	C	D	C	B
Approach Vol, veh/h		859			287			332			707	
Approach Delay, s/veh		23.8			21.8			27.4			31.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	28.1	13.1	25.7	15.9	17.8	20.7	18.1
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	5.6	38.1	20.0	29.1	20.0	33.1	20.0	29.1
Max Q Clear Time (g_c+I1), s	2.4	11.7	5.3	8.3	11.9	5.2	16.7	6.4
Green Ext Time (p_c), s	0.0	1.4	0.0	0.4	0.1	0.4	0.1	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	26.7
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	608	61	68	203	12	92	35	243	10	10	29
Future Volume (veh/h)	140	608	61	68	203	12	92	35	243	10	10	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	161	699	48	78	233	6	106	40	136	11	11	9
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	223	1264	87	216	1316	34	470	491	407	259	230	611
Arrive On Green	0.13	0.38	0.38	0.12	0.37	0.37	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1774	3357	230	1774	3526	91	1370	1863	1547	636	873	1563
Grp Volume(v), veh/h	161	368	379	78	117	122	106	40	136	22	0	9
Grp Sat Flow(s),veh/h/ln	1774	1770	1818	1774	1770	1847	1370	1863	1547	1509	0	1563
Q Serve(g_s), s	5.2	9.7	9.7	2.4	2.6	2.6	3.7	1.0	4.2	0.0	0.0	0.2
Cycle Q Clear(g_c), s	5.2	9.7	9.7	2.4	2.6	2.6	4.2	1.0	4.2	0.5	0.0	0.2
Prop In Lane	1.00		0.13	1.00		0.05	1.00		1.00	0.50		1.00
Lane Grp Cap(c), veh/h	223	666	685	216	660	689	470	491	407	489	0	611
V/C Ratio(X)	0.72	0.55	0.55	0.36	0.18	0.18	0.23	0.08	0.33	0.05	0.00	0.01
Avail Cap(c_a), veh/h	749	1496	1537	449	1198	1250	822	968	804	862	0	1012
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	14.5	14.5	23.9	12.5	12.5	17.8	16.4	17.6	16.3	0.0	11.1
Incr Delay (d2), s/veh	4.4	1.5	1.5	1.0	0.3	0.3	0.5	0.2	1.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	5.0	5.1	1.2	1.3	1.4	1.5	0.5	1.9	0.3	0.0	0.1
LnGrp Delay(d),s/veh	29.3	16.1	16.0	24.9	12.7	12.7	18.4	16.6	18.6	16.3	0.0	11.1
LnGrp LOS	C	B	B	C	B	B	B	B	B	B		B
Approach Vol, veh/h		908			317			282			31	
Approach Delay, s/veh		18.4			15.7			18.2			14.8	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.2	27.2		20.8	11.4	27.0		20.8
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		* 5.2
Max Green Setting (Gmax), s	5.6	50.1		* 31	25.0	40.1		* 31
Max Q Clear Time (g_c+I1), s	4.4	11.7		2.5	7.2	4.6		6.2
Green Ext Time (p_c), s	0.1	10.6		0.2	0.4	2.7		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.8
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

07/30/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	387	201	256	566	505	149
Future Volume (veh/h)	387	201	256	566	505	149
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1976	1863	1863	1863	1863
Adj Flow Rate, veh/h	440	119	291	643	574	105
Adj No. of Lanes	0	0	1	1	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	468	127	331	1037	602	512
Arrive On Green	0.33	0.33	0.19	0.56	0.32	0.32
Sat Flow, veh/h	1414	382	1774	1863	1863	1583
Grp Volume(v), veh/h	560	0	291	643	574	105
Grp Sat Flow(s),veh/h/ln	1799	0	1774	1863	1863	1583
Q Serve(g_s), s	25.7	0.0	13.6	19.9	25.7	4.1
Cycle Q Clear(g_c), s	25.7	0.0	13.6	19.9	25.7	4.1
Prop In Lane	0.79	0.21	1.00			1.00
Lane Grp Cap(c), veh/h	596	0	331	1037	602	512
V/C Ratio(X)	0.94	0.00	0.88	0.62	0.95	0.21
Avail Cap(c_a), veh/h	677	0	605	1324	602	512
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	0.0	33.7	12.8	28.2	20.9
Incr Delay (d2), s/veh	18.9	0.0	3.0	0.2	25.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.9	0.0	6.9	10.2	17.3	1.8
LnGrp Delay(d),s/veh	46.5	0.0	36.6	13.0	53.5	20.9
LnGrp LOS	D		D	B	D	C
Approach Vol, veh/h	560			934	679	
Approach Delay, s/veh	46.5			20.4	48.5	
Approach LOS	D			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		52.9		32.2	19.9	33.0		
Change Period (Y+Rc), s		5.5		4.0	4.0	5.5		
Max Green Setting (Gmax), s		60.5		32.0	29.0	27.5		
Max Q Clear Time (g_c+I1), s		21.9		27.7	15.6	27.7		
Green Ext Time (p_c), s		1.2		0.5	0.3	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	35.9
HCM 2010 LOS	D

Notes

HCM 2010 AWSC
12: Camino Colegio & Mitchell Dr

07/30/2019

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	231	148	36	134	15	128	19	42	51	12	12
Future Vol, veh/h	8	231	148	36	134	15	128	19	42	51	12	12
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	2	2	2	2	0	2	2	2	0	2	0
Mvmt Flow	9	266	170	41	154	17	147	22	48	59	14	14
Number of Lanes	1	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	3
HCM Control Delay	11.4	11.2	13.7	11
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	68%	100%	0%	0%	35%	0%	68%
Vol Thru, %	10%	0%	100%	34%	65%	82%	16%
Vol Right, %	22%	0%	0%	66%	0%	18%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	189	8	154	225	103	82	75
LT Vol	128	8	0	0	36	0	51
Through Vol	19	0	154	77	67	67	12
RT Vol	42	0	0	148	0	15	12
Lane Flow Rate	217	9	177	259	118	94	86
Geometry Grp	7	7	7	7	8	8	7
Degree of Util (X)	0.398	0.016	0.292	0.393	0.226	0.172	0.165
Departure Headway (Hd)	6.594	6.405	5.932	5.465	6.86	6.551	6.884
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	545	558	605	657	522	546	519
Service Time	4.347	4.151	3.678	3.211	4.621	4.312	4.649
HCM Lane V/C Ratio	0.398	0.016	0.293	0.394	0.226	0.172	0.166
HCM Control Delay	13.7	9.3	11.1	11.7	11.6	10.7	11
HCM Lane LOS	B	A	B	B	B	B	B
HCM 95th-tile Q	1.9	0	1.2	1.9	0.9	0.6	0.6

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	199	104	26	100	6	57	10	27	22	9	29
Future Vol, veh/h	22	199	104	26	100	6	57	10	27	22	9	29
Conflicting Peds, #/hr	0	0	53	0	0	6	0	0	24	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	25	229	120	30	115	7	66	11	31	25	10	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	128	0	0	402	0	0	518	580	252	379	637	70
Stage 1	-	-	-	-	-	-	392	392	-	185	185	-
Stage 2	-	-	-	-	-	-	126	188	-	194	452	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	1463	-	-	1160	-	-	443	426	751	556	395	982
Stage 1	-	-	-	-	-	-	607	607	-	802	748	-
Stage 2	-	-	-	-	-	-	868	746	-	792	571	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1455	-	-	1101	-	-	383	385	697	488	357	974
Mov Cap-2 Maneuver	-	-	-	-	-	-	383	385	-	488	357	-
Stage 1	-	-	-	-	-	-	566	567	-	784	723	-
Stage 2	-	-	-	-	-	-	801	721	-	712	533	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.6	15.8	11.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	440	1455	-	-	1101	-	-	600
HCM Lane V/C Ratio	0.246	0.017	-	-	0.027	-	-	0.115
HCM Control Delay (s)	15.8	7.5	-	-	8.4	-	-	11.8
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1	0.1	-	-	0.1	-	-	0.4

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	235	5	11	110	6	13	0	25	26	0	9
Future Vol, veh/h	9	235	5	11	110	6	13	0	25	26	0	9
Conflicting Peds, #/hr	0	0	0	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	2	2	2	2	2	2	2	2	1	2	1
Mvmt Flow	10	255	5	12	120	7	14	0	27	28	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	130	0	0	260	0	0	362	432	130	299	431	67
Stage 1	-	-	-	-	-	-	278	278	-	151	151	-
Stage 2	-	-	-	-	-	-	84	154	-	148	280	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.52	6.54	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.51	4.02	3.31
Pot Cap-1 Maneuver	1461	-	-	1302	-	-	569	515	896	633	516	986
Stage 1	-	-	-	-	-	-	705	679	-	839	771	-
Stage 2	-	-	-	-	-	-	915	769	-	842	678	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1457	-	-	1302	-	-	556	505	896	605	506	983
Mov Cap-2 Maneuver	-	-	-	-	-	-	556	505	-	605	506	-
Stage 1	-	-	-	-	-	-	700	674	-	831	761	-
Stage 2	-	-	-	-	-	-	897	759	-	811	673	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.7	10.1	10.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	741	1457	-	-	1302	-	-	671
HCM Lane V/C Ratio	0.056	0.007	-	-	0.009	-	-	0.057
HCM Control Delay (s)	10.1	7.5	-	-	7.8	0	-	10.7
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.2

HCM 2010 TWSC
15: Bodway Pkwy & Camino Colegio 07/30/2019

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	89	197	72	48	128	55
Future Vol, veh/h	89	197	72	48	128	55
Conflicting Peds, #/hr	0	4	0	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	140	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	216	79	53	141	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	389	182	208	0	-	0
Stage 1	178	-	-	-	-	-
Stage 2	211	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	615	861	1363	-	-	-
Stage 1	853	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	571	852	1354	-	-	-
Mov Cap-2 Maneuver	571	-	-	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	818	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	4.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1354	-	571	852	-	-
HCM Lane V/C Ratio	0.058	-	0.171	0.254	-	-
HCM Control Delay (s)	7.8	-	12.6	10.7	-	-
HCM Lane LOS	A	-	B	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.6	1	-	-

HCM 2010 TWSC
16: Bodway Pkwy & Waterside Ln 07/30/2019

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	9	0	0	0	0	114	0	0	323	2
Future Vol, veh/h	0	0	9	0	0	0	0	114	0	0	323	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	87	92	87	92	87	87	87	87	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	0	0	10	0	0	0	0	131	0	0	371	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	372	-	-	133	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	-	-	6.2	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	674	0	0	922	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	674	-	-	920	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.4	0	0	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	674	-	-	-
HCM Lane V/C Ratio	-	-	0.015	-	-	-
HCM Control Delay (s)	-	-	10.4	0	-	-
HCM Lane LOS	-	-	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0	-	-	-

HCM 2010 TWSC
17: Bodway Pkwy & Wisdom Ln 07/30/2019

Intersection												
Int Delay, s/veh	0.6											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	18	0	0	0	7	106	0	0	329	4
Future Vol, veh/h	3	0	18	0	0	0	7	106	0	0	329	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	50	-	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	87	92	87	92	87	87	87	87	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	3	0	20	0	0	0	8	122	0	0	378	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	518	520	380	530	522	124	382	0	0	124	0	0
Stage 1	380	380	-	140	140	-	-	-	-	-	-	-
Stage 2	138	140	-	390	382	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.52	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4.018	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	468	461	667	463	459	932	1176	-	-	1475	-	-
Stage 1	642	614	-	868	781	-	-	-	-	-	-	-
Stage 2	865	781	-	638	613	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	466	457	667	446	455	930	1176	-	-	1472	-	-
Mov Cap-2 Maneuver	466	457	-	446	455	-	-	-	-	-	-	-
Stage 1	638	614	-	860	774	-	-	-	-	-	-	-
Stage 2	859	774	-	619	613	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	0	0.5	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1176	-	-	628	-	-	1472	-	-
HCM Lane V/C Ratio	0.006	-	-	0.036	-	-	-	-	-
HCM Control Delay (s)	8.1	0	-	10.9	0	0	0	-	-
HCM Lane LOS	A	A	-	B	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-	0	-	-

HCM 2010 Roundabout
18: SOMO Ave/Valley House Dr & Bodway Pkwy 07/30/2019

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	145	317	400
Demand Flow Rate, veh/h	148	323	408
Vehicles Circulating, veh/h	387	9	206
Vehicles Exiting, veh/h	227	526	126
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	2	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.9	6.0	9.4
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	148	323	408
Cap Entry Lane, veh/h	767	1120	920
Entry HV Adj Factor	0.982	0.981	0.980
Flow Entry, veh/h	145	317	400
Cap Entry, veh/h	753	1099	902
V/C Ratio	0.193	0.288	0.444
Control Delay, s/veh	6.9	6.0	9.4
LOS	A	A	A
95th %tile Queue, veh	1	1	2

HCM 2010 Signalized Intersection Summary
19: Petaluma Hill Rd & Valley House Dr

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	0	410	1	0	2	215	756	4	8	760	84
Future Volume (veh/h)	64	0	410	1	0	2	215	756	4	8	760	84
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	70	0	207	1	0	0	236	831	4	9	835	88
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	279	0	249	2	0	0	276	1174	6	16	907	770
Arrive On Green	0.16	0.00	0.16	0.00	0.00	0.00	0.16	0.63	0.63	0.01	0.49	0.49
Sat Flow, veh/h	1774	0	1583	1774	0	0	1774	1852	9	1774	1863	1582
Grp Volume(v), veh/h	70	0	207	1	0	0	236	0	835	9	835	88
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	0	1774	0	1861	1774	1863	1582
Q Serve(g_s), s	3.1	0.0	11.5	0.1	0.0	0.0	11.7	0.0	27.0	0.5	37.7	2.7
Cycle Q Clear(g_c), s	3.1	0.0	11.5	0.1	0.0	0.0	11.7	0.0	27.0	0.5	37.7	2.7
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	0	249	2	0	0	276	0	1179	16	907	770
V/C Ratio(X)	0.25	0.00	0.83	0.51	0.00	0.00	0.85	0.00	0.71	0.57	0.92	0.11
Avail Cap(c_a), veh/h	490	0	438	78	0	0	441	0	1419	78	1040	883
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	0.0	36.9	45.2	0.0	0.0	37.2	0.0	11.0	44.7	21.6	12.6
Incr Delay (d2), s/veh	0.5	0.0	7.0	60.1	0.0	0.0	9.0	0.0	1.3	11.2	12.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	5.5	0.1	0.0	0.0	6.4	0.0	14.1	0.3	22.3	1.2
LnGrp Delay(d),s/veh	33.9	0.0	44.0	105.2	0.0	0.0	46.2	0.0	12.3	55.9	33.6	12.7
LnGrp LOS	C		D	F			D		B	E	C	B
Approach Vol, veh/h		277			1			1071			932	
Approach Delay, s/veh		41.4			105.2			19.8			31.8	
Approach LOS		D			F			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	62.3		18.7	18.6	49.0		4.1
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.0
Max Green Setting (Gmax), s	4.8	69.0		25.0	22.5	50.5		4.0
Max Q Clear Time (g_c+I1), s	2.5	29.0		13.5	13.7	39.7		2.1
Green Ext Time (p_c), s	0.0	6.6		0.8	0.4	4.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	27.4
HCM 2010 LOS	C

HCM 2010 TWSC
20: Old Redwood Hwy & E Railroad Ave

07/30/2019

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	38	31	7	36	28	27	253	5	15	540	39
Future Vol, veh/h	23	38	31	7	36	28	27	253	5	15	540	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	43	35	8	40	31	30	284	6	17	607	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1046	1013	629	1049	1032	287	651	0	0	290	0	0
Stage 1	663	663	-	347	347	-	-	-	-	-	-	-
Stage 2	383	350	-	702	685	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	206	239	482	205	233	752	935	-	-	1272	-	-
Stage 1	450	459	-	669	635	-	-	-	-	-	-	-
Stage 2	640	633	-	429	448	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	164	228	482	157	223	752	935	-	-	1272	-	-
Mov Cap-2 Maneuver	164	228	-	157	223	-	-	-	-	-	-	-
Stage 1	436	453	-	648	615	-	-	-	-	-	-	-
Stage 2	555	613	-	356	442	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.5	21.9	0.9	0.2
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	935	-	-	248	292	1272	-	-
HCM Lane V/C Ratio	0.032	-	-	0.417	0.273	0.013	-	-
HCM Control Delay (s)	9	-	-	29.5	21.9	7.9	-	-
HCM Lane LOS	A	-	-	D	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.9	1.1	0	-	-

HCM 2010 TWSC
20: Old Redwood Hwy & E Railroad Ave 07/30/2019

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	38	31	7	36	28	27	253	5	15	540	39
Future Vol, veh/h	23	38	31	7	36	28	27	253	5	15	540	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	-	-	50	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	43	35	8	40	31	30	284	6	17	607	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1046	1013	629	1049	1032	287	651	0	0	290	0	0
Stage 1	663	663	-	347	347	-	-	-	-	-	-	-
Stage 2	383	350	-	702	685	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	206	239	482	205	233	752	935	-	-	1272	-	-
Stage 1	450	459	-	669	635	-	-	-	-	-	-	-
Stage 2	640	633	-	429	448	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	164	228	482	157	223	752	935	-	-	1272	-	-
Mov Cap-2 Maneuver	164	228	-	157	223	-	-	-	-	-	-	-
Stage 1	436	453	-	648	615	-	-	-	-	-	-	-
Stage 2	555	613	-	356	442	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.7	20.5	0.9	0.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	935	-	-	164	299	209	752	1272	-	-
HCM Lane V/C Ratio	0.032	-	-	0.158	0.259	0.231	0.042	0.013	-	-
HCM Control Delay (s)	9	-	-	31	21.2	27.3	10	7.9	-	-
HCM Lane LOS	A	-	-	D	C	D	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	1	0.9	0.1	0	-	-

HCM 2010 TWSC
21: E Railroad Ave & Bodway Pkwy 07/30/2019

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	73	81	0	0	0
Future Vol, veh/h	0	73	81	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	0	84	93	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	93	0	-	0	177	93
Stage 1	-	-	-	-	93	-
Stage 2	-	-	-	-	84	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1508	-	-	-	815	967
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	942	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1508	-	-	-	815	967
Mov Cap-2 Maneuver	-	-	-	-	815	-
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	942	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1508	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	29.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	61	0	12	1	1	10	12	913	0	33	1075	68
Future Vol, veh/h	61	0	12	1	1	10	12	913	0	33	1075	68
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	65	0	13	1	1	11	13	971	0	35	1144	72

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2217	2211	1144	2254	2283	971	1216	0	0	971	0	0
Stage 1	1214	1214	-	997	997	-	-	-	-	-	-	-
Stage 2	1003	997	-	1257	1286	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 31	44	243	29	40	307	573	-	-	710	-	-
Stage 1	222	254	-	294	322	-	-	-	-	-	-	-
Stage 2	292	322	-	210	235	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 28	41	243	26	37	307	573	-	-	710	-	-
Mov Cap-2 Maneuver	~ 28	41	-	26	37	-	-	-	-	-	-	-
Stage 1	217	242	-	287	315	-	-	-	-	-	-	-
Stage 2	275	315	-	189	223	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 874.9	37.9	0.1	0.3
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	573	-	-	33	122	710	-	-
HCM Lane V/C Ratio	0.022	-	-	2.353	0.105	0.049	-	-
HCM Control Delay (s)	11.4	-	-	$ 874.9	37.9	10.3	-	-
HCM Lane LOS	B	-	-	F	E	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	8.9	0.3	0.2	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	0	12	1	1	10	12	913	0	33	1075	68
Future Volume (veh/h)	61	0	12	1	1	10	12	913	0	33	1075	68
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	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	65	0	13	1	1	11	13	971	0	35	1144	72
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	278	0	192	62	25	165	40	1128	0	105	1196	1017
Arrive On Green	0.12	0.00	0.12	0.12	0.12	0.12	0.02	0.61	0.00	0.06	0.64	0.64
Sat Flow, veh/h	1419	0	1583	38	210	1362	1774	1863	0	1774	1863	1583
Grp Volume(v), veh/h	65	0	13	13	0	0	13	971	0	35	1144	72
Grp Sat Flow(s),veh/h/ln	1419	0	1583	1610	0	0	1774	1863	0	1774	1863	1583
Q Serve(g_s), s	2.3	0.0	0.5	0.0	0.0	0.0	0.5	29.1	0.0	1.3	38.5	1.2
Cycle Q Clear(g_c), s	2.8	0.0	0.5	0.5	0.0	0.0	0.5	29.1	0.0	1.3	38.5	1.2
Prop In Lane	1.00		1.00	0.08		0.85	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	278	0	192	252	0	0	40	1128	0	105	1196	1017
V/C Ratio(X)	0.23	0.00	0.07	0.05	0.00	0.00	0.33	0.86	0.00	0.33	0.96	0.07
Avail Cap(c_a), veh/h	502	0	445	517	0	0	184	2256	0	121	2190	1861
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	0.0	26.3	26.3	0.0	0.0	32.6	11.0	0.0	30.5	11.2	4.5
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.0	0.0	0.0	1.7	0.8	0.0	0.7	3.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.2	0.2	0.0	0.0	0.3	14.8	0.0	0.6	20.5	0.5
LnGrp Delay(d),s/veh	27.4	0.0	26.4	26.4	0.0	0.0	34.3	11.8	0.0	31.2	14.6	4.5
LnGrp LOS	C		C	C			C	B		C	B	A
Approach Vol, veh/h		78			13			984			1251	
Approach Delay, s/veh		27.3			26.4			12.1			14.5	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.5	45.9		13.2	6.0	48.4		13.2
Change Period (Y+Rc), s	4.5	5.0		5.0	4.5	5.0		* 5
Max Green Setting (Gmax), s	4.6	81.9		19.0	7.0	79.5		* 20
Max Q Clear Time (g_c+I1), s	3.3	31.1		4.8	2.5	40.5		2.5
Green Ext Time (p_c), s	0.0	2.1		0.1	0.0	2.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	147	12	18	58	444	9	365	6	456	548	13
Future Volume (veh/h)	25	147	12	18	58	444	9	365	6	456	548	13
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		0.98	1.00		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	1976	1937	1976	1976	1937	1976	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	27	160	10	20	63	385	10	397	4	496	596	13
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	418	24	48	78	413	11	418	4	607	621	14
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.22	0.22	0.22	0.34	0.34	0.34
Sat Flow, veh/h	121	1395	81	37	260	1378	47	1865	19	1774	1816	40
Grp Volume(v), veh/h	197	0	0	468	0	0	411	0	0	496	0	609
Grp Sat Flow(s),veh/h/ln	1597	0	0	1674	0	0	1931	0	0	1774	0	1856
Q Serve(g_s), s	0.0	0.0	0.0	12.7	0.0	0.0	21.1	0.0	0.0	25.7	0.0	32.3
Cycle Q Clear(g_c), s	8.1	0.0	0.0	27.3	0.0	0.0	21.1	0.0	0.0	25.7	0.0	32.3
Prop In Lane	0.14		0.05	0.04		0.82	0.02		0.01	1.00		0.02
Lane Grp Cap(c), veh/h	519	0	0	539	0	0	432	0	0	607	0	635
V/C Ratio(X)	0.38	0.00	0.00	0.87	0.00	0.00	0.95	0.00	0.00	0.82	0.00	0.96
Avail Cap(c_a), veh/h	677	0	0	694	0	0	432	0	0	609	0	637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.5	0.0	0.0	34.1	0.0	0.0	38.4	0.0	0.0	30.2	0.0	32.4
Incr Delay (d2), s/veh	0.2	0.0	0.0	7.8	0.0	0.0	30.7	0.0	0.0	8.0	0.0	25.7
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	4.3	0.0	0.0	13.8	0.0	0.0	14.9	0.0	0.0	13.9	0.0	21.1
LnGrp Delay(d),s/veh	27.6	0.0	0.0	41.9	0.0	0.0	69.2	0.0	0.0	38.2	0.0	58.1
LnGrp LOS	C			D			E			D		E
Approach Vol, veh/h		197			468			411			1105	
Approach Delay, s/veh		27.6			41.9			69.2			49.1	
Approach LOS		C			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		27.0		34.6		38.9		34.6
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		22.5		39.5		34.5		39.5
Max Q Clear Time (g_c+I1), s		23.1		10.1		34.3		29.3
Green Ext Time (p_c), s		0.0		0.4		0.1		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	49.4
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd
07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	147	12	18	58	444	9	365	6	456	548	13
Future Volume (veh/h)	25	147	12	18	58	444	9	365	6	456	548	13
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		0.98	1.00		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	1976	1937	1976	1976	1937	1937	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	27	160	10	20	63	385	10	397	4	496	596	13
Adj No. of Lanes	0	1	0	0	1	1	0	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	88	275	16	111	283	886	12	472	5	640	656	14
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.25	0.25	0.25	0.36	0.36	0.36
Sat Flow, veh/h	138	1554	91	238	1597	1647	47	1865	19	1774	1816	40
Grp Volume(v), veh/h	197	0	0	83	0	385	411	0	0	496	0	609
Grp Sat Flow(s),veh/h/ln	1783	0	0	1835	0	1647	1931	0	0	1774	0	1856
Q Serve(g_s), s	1.7	0.0	0.0	0.0	0.0	9.1	13.0	0.0	0.0	16.0	0.0	20.2
Cycle Q Clear(g_c), s	6.3	0.0	0.0	2.4	0.0	9.1	13.0	0.0	0.0	16.0	0.0	20.2
Prop In Lane	0.14		0.05	0.24		1.00	0.02		0.01	1.00		0.02
Lane Grp Cap(c), veh/h	379	0	0	394	0	886	488	0	0	640	0	670
V/C Ratio(X)	0.52	0.00	0.00	0.21	0.00	0.43	0.84	0.00	0.00	0.77	0.00	0.91
Avail Cap(c_a), veh/h	813	0	0	834	0	1309	703	0	0	1237	0	1294
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	0.0	22.8	0.0	9.0	22.9	0.0	0.0	18.3	0.0	19.6
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.1	0.0	0.1	5.5	0.0	0.0	0.8	0.0	2.0
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	3.3	0.0	0.0	1.3	0.0	6.8	7.7	0.0	0.0	7.9	0.0	10.5
LnGrp Delay(d),s/veh	24.8	0.0	0.0	22.9	0.0	9.1	28.4	0.0	0.0	19.1	0.0	21.7
LnGrp LOS	C			C		A	C			B		C
Approach Vol, veh/h		197			468			411			1105	
Approach Delay, s/veh		24.8			11.6			28.4			20.5	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.8		15.9		27.8		15.9
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		23.5		28.0		45.0		28.0
Max Q Clear Time (g_c+I1), s		15.0		8.3		22.2		11.1
Green Ext Time (p_c), s		1.3		0.3		1.1		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
24: N McDowell Blvd & Old Redwood Hwy

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	607	714	115	579	17	388	61	76	7	23	45
Future Volume (veh/h)	220	607	714	115	579	17	388	61	76	7	23	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	229	632	0	120	603	14	450	0	31	7	24	1
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	218	844	656	696	1822	42	563	0	248	105	110	93
Arrive On Green	0.21	0.40	0.00	0.39	0.52	0.52	0.16	0.00	0.16	0.06	0.06	0.06
Sat Flow, veh/h	1774	3539	1583	1774	3536	82	3548	0	1565	1774	1863	1571
Grp Volume(v), veh/h	229	632	0	120	302	315	450	0	31	7	24	1
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1848	1774	0	1565	1774	1863	1571
Q Serve(g_s), s	16.0	19.9	0.0	5.7	13.0	13.0	15.9	0.0	2.2	0.5	1.6	0.1
Cycle Q Clear(g_c), s	16.0	19.9	0.0	5.7	13.0	13.0	15.9	0.0	2.2	0.5	1.6	0.1
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	218	844	656	696	912	952	563	0	248	105	110	93
V/C Ratio(X)	1.05	0.75	0.00	0.17	0.33	0.33	0.80	0.00	0.12	0.07	0.22	0.01
Avail Cap(c_a), veh/h	218	844	656	696	912	952	1010	0	446	413	434	366
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.6	35.8	0.0	25.8	18.4	18.4	52.7	0.0	46.9	57.8	58.3	57.6
Incr Delay (d2), s/veh	68.3	5.0	0.0	0.0	1.0	0.9	1.0	0.0	0.1	0.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.9	10.2	0.0	2.8	6.5	6.8	7.9	0.0	1.0	0.2	0.8	0.0
LnGrp Delay(d),s/veh	120.0	40.7	0.0	25.8	19.4	19.4	53.7	0.0	47.0	57.9	58.7	57.6
LnGrp LOS	F	D		C	B	B	D		D	E	E	E
Approach Vol, veh/h		861			737			481			32	
Approach Delay, s/veh		61.8			20.4			53.3			58.4	
Approach LOS		E			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.0	36.0		12.4	20.0	72.0		25.6
Change Period (Y+Rc), s	5.0	* 5		* 4.7	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	* 31		* 30	16.0	28.0		37.0
Max Q Clear Time (g_c+I1), s	17.9	21.9		3.6	18.0	15.0		17.9
Green Ext Time (p_c), s	0.1	3.9		0.1	0.0	4.6		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	45.4
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
25: US 101 NB Off-ramp & Old Redwood Hwy

07/30/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1071	378	0	1013	122	478
Future Volume (veh/h)	1071	378	0	1013	122	478
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	1093	0	0	1034	124	370
Adj No. of Lanes	2	1	0	2	2	2
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2365	1058	0	2365	601	487
Arrive On Green	0.67	0.00	0.00	1.00	0.17	0.17
Sat Flow, veh/h	3632	1583	0	3725	3442	2787
Grp Volume(v), veh/h	1093	0	0	1034	124	370
Grp Sat Flow(s),veh/h/ln	1770	1583	0	1770	1721	1393
Q Serve(g_s), s	9.6	0.0	0.0	0.0	2.0	8.2
Cycle Q Clear(g_c), s	9.6	0.0	0.0	0.0	2.0	8.2
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2365	1058	0	2365	601	487
V/C Ratio(X)	0.46	0.00	0.00	0.44	0.21	0.76
Avail Cap(c_a), veh/h	2365	1058	0	2365	895	725
HCM Platoon Ratio	1.00	1.00	1.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.89	1.00	1.00
Uniform Delay (d), s/veh	5.2	0.0	0.0	0.0	23.0	25.5
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.5	0.2	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	0.0	0.2	1.0	3.3
LnGrp Delay(d),s/veh	5.8	0.0	0.0	0.5	23.1	28.2
LnGrp LOS	A			A	C	C
Approach Vol, veh/h	1093			1034	494	
Approach Delay, s/veh	5.8			0.5	26.9	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		48.5				48.5		16.5
Change Period (Y+Rc), s		5.1				5.1		5.1
Max Green Setting (Gmax), s		37.9				37.9		16.9
Max Q Clear Time (g_c+I1), s		11.6				2.0		10.2
Green Ext Time (p_c), s		11.9				12.7		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1: Snyder Ln & Rohnert Park Expwy

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	274	300	266	39	166	85	259	378	59	160	408	245
Future Volume (veh/h)	274	300	266	39	166	85	259	378	59	160	408	245
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		0.98	1.00		0.98	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	315	345	292	45	191	93	298	434	65	184	469	268
Adj No. of Lanes	2	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	498	701	556	166	520	455	539	1167	649	491	1117	711
Arrive On Green	0.14	0.20	0.20	0.09	0.15	0.15	0.16	0.33	0.33	0.14	0.32	0.32
Sat Flow, veh/h	3442	3539	1558	1774	3539	1559	3442	3539	1519	3442	3539	1528
Grp Volume(v), veh/h	315	345	292	45	191	93	298	434	65	184	469	268
Grp Sat Flow(s),veh/h/ln	1721	1770	1558	1774	1770	1559	1721	1770	1519	1721	1770	1528
Q Serve(g_s), s	7.1	7.2	12.3	2.0	4.0	3.7	6.6	7.8	2.1	4.0	8.7	9.5
Cycle Q Clear(g_c), s	7.1	7.2	12.3	2.0	4.0	3.7	6.6	7.8	2.1	4.0	8.7	9.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	498	701	556	166	520	455	539	1167	649	491	1117	711
V/C Ratio(X)	0.63	0.49	0.52	0.27	0.37	0.20	0.55	0.37	0.10	0.37	0.42	0.38
Avail Cap(c_a), veh/h	623	1933	1099	321	1929	1075	623	1929	976	623	1929	1062
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	29.5	21.3	35.0	31.9	22.3	32.3	21.2	14.4	32.2	22.4	14.7
Incr Delay (d2), s/veh	0.6	0.2	0.3	0.3	0.2	0.1	0.3	0.1	0.0	0.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	3.5	5.4	1.0	2.0	1.6	3.2	3.8	0.9	1.9	4.2	4.0
LnGrp Delay(d),s/veh	34.0	29.7	21.5	35.3	32.1	22.3	32.6	21.3	14.4	32.4	22.5	14.8
LnGrp LOS	C	C	C	D	C	C	C	C	B	C	C	B
Approach Vol, veh/h		952			329			797			921	
Approach Delay, s/veh		28.6			29.8			25.0			22.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.8	33.1	11.7	22.2	17.0	32.0	16.0	18.0
Change Period (Y+Rc), s	4.0	5.8	4.0	* 5.8	4.0	5.8	4.0	* 5.8
Max Green Setting (Gmax), s	15.0	45.2	15.0	* 45	15.0	45.2	15.0	* 45
Max Q Clear Time (g_c+I1), s	6.0	9.8	4.0	14.3	8.6	11.5	9.1	6.0
Green Ext Time (p_c), s	0.1	1.0	0.0	0.9	0.1	1.1	0.1	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	25.8
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
2: US 101 SB Ramps & Gravenstein Hwy

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	504	255	254	754	0	0	0	0	391	0	250
Future Volume (veh/h)	0	504	255	254	754	0	0	0	0	391	0	250
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	0	1863	1937	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	525	172	265	785	0				407	0	153
Adj No. of Lanes	0	2	1	1	2	0				2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1142	523	710	2704	0				530	0	239
Arrive On Green	0.00	0.32	0.32	0.80	1.00	0.00				0.15	0.00	0.15
Sat Flow, veh/h	0	3632	1622	1774	3632	0				3442	0	1554
Grp Volume(v), veh/h	0	525	172	265	785	0				407	0	153
Grp Sat Flow(s),veh/h/ln	0	1770	1622	1774	1770	0				1721	0	1554
Q Serve(g_s), s	0.0	13.0	8.8	4.7	0.0	0.0				12.5	0.0	10.2
Cycle Q Clear(g_c), s	0.0	13.0	8.8	4.7	0.0	0.0				12.5	0.0	10.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1142	523	710	2704	0				530	0	239
V/C Ratio(X)	0.00	0.46	0.33	0.37	0.29	0.00				0.77	0.00	0.64
Avail Cap(c_a), veh/h	0	1142	523	710	2704	0				829	0	374
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.90	0.90	0.96	0.96	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	29.6	28.2	7.0	0.0	0.0				44.6	0.0	43.7
Incr Delay (d2), s/veh	0.0	1.2	1.5	0.1	0.3	0.0				0.9	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.5	4.2	2.2	0.1	0.0				6.0	0.0	4.4
LnGrp Delay(d),s/veh	0.0	30.8	29.7	7.1	0.3	0.0				45.5	0.0	44.7
LnGrp LOS		C	C	A	A					D		D
Approach Vol, veh/h		697			1050						560	
Approach Delay, s/veh		30.6			2.0						45.3	
Approach LOS		C			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	8.6	40.0		21.4		88.6		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	4.5	35.5		26.5		74.5		
Max Q Clear Time (g_c+I1), s	6.7	15.0		14.5		2.0		
Green Ext Time (p_c), s	0.2	3.9		2.5		5.4		

Intersection Summary	
HCM 2010 Ctrl Delay	21.1
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
3: US 101 NB Off-ramp & Gravenstein Hwy

05/16/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	894	0	0	725	280	90
Future Volume (veh/h)	894	0	0	725	280	90
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863
Adj Flow Rate, veh/h	931	0	0	755	292	69
Adj No. of Lanes	2	0	0	3	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	2788	0	0	4006	449	207
Arrive On Green	0.53	0.00	0.00	0.79	0.13	0.13
Sat Flow, veh/h	3725	0	0	5421	3442	1583
Grp Volume(v), veh/h	931	0	0	755	292	69
Grp Sat Flow(s),veh/h/ln	1770	0	0	1695	1721	1583
Q Serve(g_s), s	16.6	0.0	0.0	4.1	8.9	4.4
Cycle Q Clear(g_c), s	16.6	0.0	0.0	4.1	8.9	4.4
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2788	0	0	4006	449	207
V/C Ratio(X)	0.33	0.00	0.00	0.19	0.65	0.33
Avail Cap(c_a), veh/h	2788	0	0	4006	1173	540
HCM Platoon Ratio	0.67	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.00	0.00	0.75	1.00	1.00
Uniform Delay (d), s/veh	9.4	0.0	0.0	2.9	45.4	43.5
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	1.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	0.0	0.0	1.9	4.3	2.0
LnGrp Delay(d),s/veh	9.7	0.0	0.0	3.0	47.0	44.4
LnGrp LOS	A			A	D	D
Approach Vol, veh/h	931			755	361	
Approach Delay, s/veh	9.7			3.0	46.5	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		91.2				91.2		18.8
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		63.5				63.5		37.5
Max Q Clear Time (g_c+I1), s		18.6				6.1		10.9
Green Ext Time (p_c), s		14.4				11.1		3.5

Intersection Summary	
HCM 2010 Ctrl Delay	13.7
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Old Redwood Hwy & Gravenstein Hwy/Gravenstein Way

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	422	61	489	47	85	55	271	685	23	20	95	364
Future Volume (veh/h)	422	61	489	47	85	55	271	685	23	20	95	364
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	435	63	0	48	88	46	279	706	15	21	98	359
Adj No. of Lanes	2	1	1	1	1	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	655	355	301	182	118	62	429	878	19	377	396	638
Arrive On Green	0.19	0.19	0.00	0.10	0.10	0.10	0.24	0.24	0.24	0.21	0.21	0.21
Sat Flow, veh/h	3442	1863	1583	1774	1147	600	1774	3632	77	1774	1863	1583
Grp Volume(v), veh/h	435	63	0	48	0	134	279	362	359	21	98	359
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	0	1747	1774	1863	1846	1774	1863	1583
Q Serve(g_s), s	8.1	2.0	0.0	1.7	0.0	5.2	9.8	12.7	12.7	0.7	3.0	12.1
Cycle Q Clear(g_c), s	8.1	2.0	0.0	1.7	0.0	5.2	9.8	12.7	12.7	0.7	3.0	12.1
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	655	355	301	182	0	179	429	450	446	377	396	638
V/C Ratio(X)	0.66	0.18	0.00	0.26	0.00	0.75	0.65	0.80	0.80	0.06	0.25	0.56
Avail Cap(c_a), veh/h	1218	659	561	615	0	606	487	511	507	641	673	873
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	23.5	0.0	28.6	0.0	30.2	23.6	24.7	24.7	21.7	22.7	16.0
Incr Delay (d2), s/veh	0.4	0.1	0.0	0.3	0.0	2.3	1.7	7.0	7.1	0.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	1.0	0.0	0.9	0.0	2.6	5.0	7.3	7.3	0.3	1.6	6.8
LnGrp Delay(d),s/veh	26.4	23.6	0.0	28.9	0.0	32.5	25.3	31.7	31.8	21.7	22.8	16.2
LnGrp LOS	C	C		C		C	C	C	C	C	C	B
Approach Vol, veh/h		498			182			1000			478	
Approach Delay, s/veh		26.0			31.6			30.0			17.8	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		17.7		19.2		11.1		21.2
Change Period (Y+Rc), s		4.5		4.5		4.0		4.5
Max Green Setting (Gmax), s		24.5		25.0		24.0		19.0
Max Q Clear Time (g_c+I1), s		10.1		14.1		7.2		14.7
Green Ext Time (p_c), s		2.4		0.6		0.2		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	26.5
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	217	5	18	375	570	4	335	3	312	270	47
Future Volume (veh/h)	71	217	5	18	375	570	4	335	3	312	270	47
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	74	226	3	19	391	547	4	349	2	325	281	44
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	755	628	31	654	583	8	505	3	364	635	531
Arrive On Green	0.05	0.41	0.41	0.02	0.37	0.37	0.00	0.14	0.14	0.21	0.34	0.34
Sat Flow, veh/h	1774	1863	1548	1774	1770	1579	1774	3607	21	1774	1863	1559
Grp Volume(v), veh/h	74	226	3	19	391	547	4	171	180	325	281	44
Grp Sat Flow(s),veh/h/ln	1774	1863	1548	1774	1770	1579	1774	1770	1858	1774	1863	1559
Q Serve(g_s), s	3.2	6.4	0.1	0.8	13.9	25.9	0.2	7.1	7.1	13.8	9.1	1.5
Cycle Q Clear(g_c), s	3.2	6.4	0.1	0.8	13.9	25.9	0.2	7.1	7.1	13.8	9.1	1.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	95	755	628	31	654	583	8	248	260	364	635	531
V/C Ratio(X)	0.78	0.30	0.00	0.62	0.60	0.94	0.53	0.69	0.69	0.89	0.44	0.08
Avail Cap(c_a), veh/h	172	771	641	124	685	611	92	730	767	515	1213	1015
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	15.6	13.7	37.8	19.8	23.6	38.5	31.7	31.8	30.0	19.8	17.3
Incr Delay (d2), s/veh	5.1	0.1	0.0	7.3	0.9	21.3	19.6	1.3	1.2	10.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	3.3	0.0	0.5	6.9	14.7	0.1	3.6	3.7	7.9	4.7	0.6
LnGrp Delay(d),s/veh	41.4	15.7	13.7	45.1	20.7	44.9	58.2	33.0	33.0	40.9	20.0	17.4
LnGrp LOS	D	B	B	D	C	D	E	C	C	D	C	B
Approach Vol, veh/h		303			957			355			650	
Approach Delay, s/veh		21.9			35.0			33.3			30.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	35.9	4.8	30.9	8.6	33.1	20.4	15.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.4	32.1	4.0	50.5	7.5	30.0	22.5	32.0
Max Q Clear Time (g_c+I1), s	2.8	8.4	2.2	11.1	5.2	27.9	15.8	9.1
Green Ext Time (p_c), s	0.0	0.4	0.0	0.5	0.0	0.7	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	31.6
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	217	5	18	375	570	4	335	3	312	270	47
Future Volume (veh/h)	71	217	5	18	375	570	4	335	3	312	270	47
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	74	226	3	19	391	547	4	349	2	325	281	44
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	640	532	32	575	819	8	532	3	372	657	545
Arrive On Green	0.05	0.34	0.34	0.02	0.31	0.31	0.00	0.15	0.15	0.21	0.35	0.35
Sat Flow, veh/h	1774	1863	1548	1774	1863	1579	1774	3607	21	1774	1863	1543
Grp Volume(v), veh/h	74	226	3	19	391	547	4	171	180	325	281	44
Grp Sat Flow(s),veh/h/ln	1774	1863	1548	1774	1863	1579	1774	1770	1858	1774	1863	1543
Q Serve(g_s), s	2.6	5.8	0.1	0.7	11.8	16.4	0.1	5.8	5.8	11.3	7.4	1.2
Cycle Q Clear(g_c), s	2.6	5.8	0.1	0.7	11.8	16.4	0.1	5.8	5.8	11.3	7.4	1.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	94	640	532	32	575	819	8	261	274	372	657	545
V/C Ratio(X)	0.79	0.35	0.01	0.60	0.68	0.67	0.53	0.66	0.66	0.87	0.43	0.08
Avail Cap(c_a), veh/h	180	905	752	150	873	1072	111	885	929	651	1499	1242
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	15.7	13.8	31.2	19.4	11.4	31.8	25.7	25.7	24.5	15.8	13.8
Incr Delay (d2), s/veh	5.3	0.1	0.0	6.5	0.5	0.4	19.2	1.0	1.0	2.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.0	0.0	0.4	6.1	7.1	0.1	2.9	3.1	5.8	3.8	0.5
LnGrp Delay(d),s/veh	35.3	15.8	13.8	37.7	19.9	11.8	51.0	26.8	26.7	27.0	15.9	13.8
LnGrp LOS	D	B	B	D	B	B	D	C	C	C	B	B
Approach Vol, veh/h		303			957			355			650	
Approach Delay, s/veh		20.5			15.6			27.0			21.3	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	26.5	4.8	27.1	7.9	24.2	17.9	13.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.4	31.1	4.0	51.5	6.5	30.0	23.5	32.0
Max Q Clear Time (g_c+I1), s	2.7	7.8	2.1	9.4	4.6	18.4	13.3	7.8
Green Ext Time (p_c), s	0.0	0.4	0.0	0.5	0.0	1.0	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	19.7
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	67.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	590	76	34	997	7	136	0	43	1	0	2
Future Vol, veh/h	6	590	76	34	997	7	136	0	43	1	0	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	628	81	36	1061	7	145	0	46	1	0	2
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	24.3	104.9	17.5	11.5
HCM LOS	C	F	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	76%	100%	0%	0%	100%	0%	0%	33%
Vol Thru, %	0%	0%	100%	72%	0%	100%	98%	0%
Vol Right, %	24%	0%	0%	28%	0%	0%	2%	67%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	179	6	393	273	34	665	339	3
LT Vol	136	6	0	0	34	0	0	1
Through Vol	0	0	393	197	0	665	332	0
RT Vol	43	0	0	76	0	0	7	2
Lane Flow Rate	190	6	418	290	36	707	361	3
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.431	0.013	0.774	0.521	0.07	1.263	0.643	0.007
Departure Headway (Hd)	8.503	7.506	6.996	6.797	6.941	6.432	6.417	8.749
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	427	480	519	534	515	566	563	412
Service Time	6.203	5.206	4.696	4.497	4.692	4.183	4.168	6.449
HCM Lane V/C Ratio	0.445	0.013	0.805	0.543	0.07	1.249	0.641	0.007
HCM Control Delay	17.5	10.3	29.7	16.7	10.2	153.1	20.1	11.5
HCM Lane LOS	C	B	D	C	B	F	C	B
HCM 95th-tile Q	2.1	0	7	3	0.2	27.7	4.6	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	590	76	34	997	7	136	0	43	1	0	2
Future Volume (veh/h)	6	590	76	34	997	7	136	0	43	1	0	2
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1976	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	6	628	81	36	1061	7	145	0	46	1	0	2
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	385	1348	174	495	1546	10	474	15	76	246	59	229
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.22	0.00	0.22	0.22	0.00	0.22
Sat Flow, veh/h	526	3142	405	735	3604	24	1040	70	352	259	273	1064
Grp Volume(v), veh/h	6	353	356	36	521	547	191	0	0	3	0	0
Grp Sat Flow(s),veh/h/ln	526	1770	1777	735	1770	1858	1462	0	0	1596	0	0
Q Serve(g_s), s	0.2	3.6	3.6	0.9	6.0	6.0	2.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.3	3.6	3.6	4.5	6.0	6.0	2.9	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.23	1.00		0.01	0.76		0.24	0.33		0.67
Lane Grp Cap(c), veh/h	385	759	762	495	759	797	565	0	0	533	0	0
V/C Ratio(X)	0.02	0.47	0.47	0.07	0.69	0.69	0.34	0.00	0.00	0.01	0.00	0.00
Avail Cap(c_a), veh/h	1417	4234	4252	1939	4234	4445	1996	0	0	2016	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.4	5.2	5.2	6.8	5.8	5.8	8.9	0.0	0.0	7.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.4	0.4	0.1	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	1.7	1.7	0.2	3.0	3.1	1.2	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	8.4	5.3	5.3	6.8	6.3	6.2	9.0	0.0	0.0	7.8	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A			A		
Approach Vol, veh/h		715			1104			191			3	
Approach Delay, s/veh		5.3			6.3			9.0			7.8	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		15.3		9.9		15.3		9.9
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		60.5		30.5		60.5		30.5
Max Q Clear Time (g_c+I1), s		8.3		2.0		8.0		4.9
Green Ext Time (p_c), s		1.6		0.0		2.5		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	6.2
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	566	319	72	367	45	430	177	165	60	162	126
Future Volume (veh/h)	105	566	319	72	367	45	430	177	165	60	162	126
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.96	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	117	629	305	80	408	36	478	197	83	67	180	39
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	703	341	183	1047	92	329	459	381	197	254	55
Arrive On Green	0.10	0.31	0.31	0.10	0.32	0.32	0.19	0.25	0.25	0.11	0.17	0.17
Sat Flow, veh/h	1774	2292	1111	1774	3280	288	1774	1863	1547	1774	1476	320
Grp Volume(v), veh/h	117	486	448	80	219	225	478	197	83	67	0	219
Grp Sat Flow(s),veh/h/ln	1774	1770	1634	1774	1770	1798	1774	1863	1547	1774	0	1796
Q Serve(g_s), s	5.1	21.2	21.2	3.4	7.8	7.9	15.0	7.2	3.5	2.8	0.0	9.3
Cycle Q Clear(g_c), s	5.1	21.2	21.2	3.4	7.8	7.9	15.0	7.2	3.5	2.8	0.0	9.3
Prop In Lane	1.00		0.68	1.00		0.16	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	183	543	501	183	565	574	329	459	381	197	0	309
V/C Ratio(X)	0.64	0.89	0.89	0.44	0.39	0.39	1.45	0.43	0.22	0.34	0.00	0.71
Avail Cap(c_a), veh/h	219	636	588	219	658	669	329	739	614	219	0	602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.8	26.8	26.8	34.1	21.4	21.4	33.0	25.7	24.3	33.2	0.0	31.6
Incr Delay (d2), s/veh	2.4	12.5	13.4	0.6	0.2	0.2	220.3	0.2	0.1	0.4	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	12.1	11.3	1.7	3.8	3.9	27.4	3.8	1.5	1.4	0.0	4.7
LnGrp Delay(d),s/veh	37.3	39.3	40.2	34.7	21.6	21.6	253.2	25.9	24.4	33.6	0.0	32.7
LnGrp LOS	D	D	D	C	C	C	F	C	C	C		C
Approach Vol, veh/h		1051			524			758			286	
Approach Delay, s/veh		39.4			23.6			169.1			32.9	
Approach LOS		D			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.3	29.7	19.0	18.8	12.4	30.7	13.0	24.8
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	8.0	29.1	15.0	27.1	10.0	30.1	10.0	32.1
Max Q Clear Time (g_c+I1), s	15.4	23.2	17.0	11.3	7.1	9.9	4.8	9.2
Green Ext Time (p_c), s	0.0	1.4	0.0	0.4	0.0	0.8	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	73.1
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	566	319	72	367	45	430	177	165	60	162	126
Future Volume (veh/h)	105	566	319	72	367	45	430	177	165	60	162	126
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.96	0.99		0.98	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	117	629	305	80	408	36	478	197	83	67	180	39
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	162	697	338	166	1039	91	553	600	500	398	245	53
Arrive On Green	0.09	0.30	0.30	0.09	0.32	0.32	0.24	0.32	0.32	0.08	0.17	0.17
Sat Flow, veh/h	1774	2292	1111	1774	3280	288	1774	1863	1551	1774	1476	320
Grp Volume(v), veh/h	117	486	448	80	219	225	478	197	83	67	0	219
Grp Sat Flow(s),veh/h/ln	1774	1770	1633	1774	1770	1798	1774	1863	1551	1774	0	1796
Q Serve(g_s), s	6.0	24.6	24.7	4.0	9.0	9.1	19.9	7.5	3.6	2.8	0.0	10.8
Cycle Q Clear(g_c), s	6.0	24.6	24.7	4.0	9.0	9.1	19.9	7.5	3.6	2.8	0.0	10.8
Prop In Lane	1.00		0.68	1.00		0.16	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	162	538	497	166	561	570	553	600	500	398	0	298
V/C Ratio(X)	0.72	0.90	0.90	0.48	0.39	0.39	0.86	0.33	0.17	0.17	0.00	0.74
Avail Cap(c_a), veh/h	284	701	647	189	626	636	646	897	747	427	0	520
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.4	31.2	31.2	40.3	24.9	25.0	22.7	24.0	22.7	27.7	0.0	37.1
Incr Delay (d2), s/veh	2.2	10.8	11.5	0.8	0.2	0.2	9.4	0.1	0.1	0.1	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	13.6	12.7	2.0	4.4	4.6	11.1	3.9	1.5	1.4	0.0	5.5
LnGrp Delay(d),s/veh	43.6	42.0	42.8	41.1	25.1	25.1	32.1	24.2	22.8	27.8	0.0	38.4
LnGrp LOS	D	D	D	D	C	C	C	C	C	C		D
Approach Vol, veh/h		1051			524			758			286	
Approach Delay, s/veh		42.5			27.6			29.0			35.9	
Approach LOS		D			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	33.4	26.1	20.4	12.6	34.6	11.4	35.1
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	8.0	37.1	27.0	27.1	15.0	33.1	9.0	45.1
Max Q Clear Time (g_c+I1), s	16.0	26.7	21.9	12.8	8.0	11.1	4.8	9.5
Green Ext Time (p_c), s	0.0	1.8	0.1	0.3	0.0	0.8	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	34.9
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	238	506	37	9	149	167	76	219	21	324	180	244
Future Volume (veh/h)	238	506	37	9	149	167	76	219	21	324	180	244
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	3	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.95	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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	274	582	29	10	171	120	87	252	11	372	207	142
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	315	1160	693	40	613	640	217	612	27	417	540	732
Arrive On Green	0.18	0.33	0.33	0.02	0.17	0.17	0.12	0.18	0.18	0.23	0.29	0.29
Sat Flow, veh/h	1774	3539	1521	1774	3539	1549	1774	3447	150	1774	1863	1557
Grp Volume(v), veh/h	274	582	29	10	171	120	87	129	134	372	207	142
Grp Sat Flow(s),veh/h/ln	1774	1770	1521	1774	1770	1549	1774	1770	1827	1774	1863	1557
Q Serve(g_s), s	11.2	9.9	0.8	0.4	3.1	3.7	3.4	4.8	4.9	15.2	6.7	4.0
Cycle Q Clear(g_c), s	11.2	9.9	0.8	0.4	3.1	3.7	3.4	4.8	4.9	15.2	6.7	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	315	1160	693	40	613	640	217	314	324	417	540	732
V/C Ratio(X)	0.87	0.50	0.04	0.25	0.28	0.19	0.40	0.41	0.41	0.89	0.38	0.19
Avail Cap(c_a), veh/h	475	1807	971	357	1570	1053	475	690	712	475	726	888
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.1	20.3	11.6	36.1	27.0	14.3	30.4	27.4	27.4	28.1	21.3	11.7
Incr Delay (d2), s/veh	7.5	0.1	0.0	1.2	0.1	0.1	0.4	0.3	0.3	16.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	4.8	0.3	0.2	1.5	1.6	1.7	2.4	2.5	10.0	3.4	1.7
LnGrp Delay(d),s/veh	37.6	20.4	11.6	37.3	27.1	14.3	30.9	27.7	27.7	47.6	21.5	11.8
LnGrp LOS	D	C	B	D	C	B	C	C	C	D	C	B
Approach Vol, veh/h		885			301			350			721	
Approach Delay, s/veh		25.5			22.3			28.5			33.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	29.5	13.2	26.3	17.2	17.9	21.3	18.2
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	5.0	38.1	20.0	29.1	20.0	33.1	20.0	29.1
Max Q Clear Time (g_c+I1), s	2.4	11.9	5.4	8.7	13.2	5.7	17.2	6.9
Green Ext Time (p_c), s	0.0	1.4	0.0	0.4	0.1	0.4	0.1	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	27.9
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	608	65	72	203	12	104	35	256	10	10	29
Future Volume (veh/h)	140	608	65	72	203	12	104	35	256	10	10	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	161	699	53	83	233	6	120	40	151	11	11	9
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	221	1257	95	222	1332	34	467	488	405	255	227	607
Arrive On Green	0.12	0.38	0.38	0.13	0.38	0.38	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1774	3331	252	1774	3526	91	1370	1863	1547	631	867	1563
Grp Volume(v), veh/h	161	371	381	83	117	122	120	40	151	22	0	9
Grp Sat Flow(s),veh/h/ln	1774	1770	1814	1774	1770	1847	1370	1863	1547	1498	0	1563
Q Serve(g_s), s	5.2	9.9	9.9	2.6	2.6	2.6	4.3	1.0	4.8	0.0	0.0	0.2
Cycle Q Clear(g_c), s	5.2	9.9	9.9	2.6	2.6	2.6	4.8	1.0	4.8	0.5	0.0	0.2
Prop In Lane	1.00		0.14	1.00		0.05	1.00		1.00	0.50		1.00
Lane Grp Cap(c), veh/h	221	668	684	222	669	698	467	488	405	483	0	607
V/C Ratio(X)	0.73	0.56	0.56	0.37	0.17	0.18	0.26	0.08	0.37	0.05	0.00	0.01
Avail Cap(c_a), veh/h	741	1482	1519	445	1186	1238	813	959	796	848	0	1002
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.2	14.7	14.7	24.0	12.4	12.4	18.3	16.7	18.1	16.5	0.0	11.3
Incr Delay (d2), s/veh	4.6	1.5	1.5	1.0	0.3	0.3	0.6	0.2	1.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	5.0	5.2	1.3	1.3	1.4	1.7	0.5	2.2	0.3	0.0	0.1
LnGrp Delay(d),s/veh	29.8	16.2	16.2	25.1	12.7	12.7	18.9	16.8	19.3	16.6	0.0	11.3
LnGrp LOS	C	B	B	C	B	B	B	B	B	B		B
Approach Vol, veh/h		913			322			311			31	
Approach Delay, s/veh		18.6			15.9			18.8			15.1	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.5	27.5		20.9	11.4	27.5		20.9
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		* 5.2
Max Green Setting (Gmax), s	5.0	50.1		* 31	25.0	40.1		* 31
Max Q Clear Time (g_c+I1), s	4.6	11.9		2.5	7.2	4.6		6.8
Green Ext Time (p_c), s	0.1	10.7		0.2	0.4	2.7		2.4

Intersection Summary	
HCM 2010 Ctrl Delay	18.0
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

05/16/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	387	201	256	595	513	149
Future Volume (veh/h)	387	201	256	595	513	149
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1976	1863	1863	1863	1863
Adj Flow Rate, veh/h	440	119	291	676	583	105
Adj No. of Lanes	0	0	1	1	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	468	127	331	1037	602	512
Arrive On Green	0.33	0.33	0.19	0.56	0.32	0.32
Sat Flow, veh/h	1414	382	1774	1863	1863	1583
Grp Volume(v), veh/h	560	0	291	676	583	105
Grp Sat Flow(s),veh/h/ln	1799	0	1774	1863	1863	1583
Q Serve(g_s), s	25.7	0.0	13.6	21.5	26.2	4.1
Cycle Q Clear(g_c), s	25.7	0.0	13.6	21.5	26.2	4.1
Prop In Lane	0.79	0.21	1.00			1.00
Lane Grp Cap(c), veh/h	596	0	331	1037	602	512
V/C Ratio(X)	0.94	0.00	0.88	0.65	0.97	0.21
Avail Cap(c_a), veh/h	677	0	605	1324	602	512
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	0.0	33.7	13.1	28.4	20.9
Incr Delay (d2), s/veh	18.9	0.0	3.0	0.3	28.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.9	0.0	6.9	11.0	18.2	1.8
LnGrp Delay(d),s/veh	46.5	0.0	36.6	13.4	57.0	20.9
LnGrp LOS	D		D	B	E	C
Approach Vol, veh/h	560			967	688	
Approach Delay, s/veh	46.5			20.4	51.5	
Approach LOS	D			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		52.9		32.2	19.9	33.0		
Change Period (Y+Rc), s		5.5		4.0	4.0	5.5		
Max Green Setting (Gmax), s		60.5		32.0	29.0	27.5		
Max Q Clear Time (g_c+I1), s		23.5		27.7	15.6	28.2		
Green Ext Time (p_c), s		1.2		0.5	0.3	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	36.7
HCM 2010 LOS	D

Notes

HCM 2010 AWSC
12: Camino Colegio & Mitchell Dr

05/16/2019

Intersection	
Intersection Delay, s/veh	16.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	235	174	37	148	17	219	33	44	52	16	12
Future Vol, veh/h	8	235	174	37	148	17	219	33	44	52	16	12
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	2	2	2	2	0	2	2	2	0	2	0
Mvmt Flow	9	270	200	43	170	20	252	38	51	60	18	14
Number of Lanes	1	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	3
HCM Control Delay	14	12.9	22.9	12.2
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	74%	100%	0%	0%	33%	0%	65%
Vol Thru, %	11%	0%	100%	31%	67%	81%	20%
Vol Right, %	15%	0%	0%	69%	0%	19%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	296	8	157	252	111	91	80
LT Vol	219	8	0	0	37	0	52
Through Vol	33	0	157	78	74	74	16
RT Vol	44	0	0	174	0	17	12
Lane Flow Rate	340	9	180	290	128	105	92
Geometry Grp	7	7	7	7	8	8	7
Degree of Util (X)	0.668	0.018	0.334	0.498	0.274	0.215	0.194
Departure Headway (Hd)	7.072	7.154	6.677	6.183	7.719	7.413	7.609
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	514	502	540	586	466	484	472
Service Time	4.791	4.873	4.396	3.903	5.464	5.158	5.356
HCM Lane V/C Ratio	0.661	0.018	0.333	0.495	0.275	0.217	0.195
HCM Control Delay	22.9	10	12.7	14.9	13.4	12.2	12.2
HCM Lane LOS	C	A	B	B	B	B	B
HCM 95th-tile Q	4.9	0.1	1.5	2.8	1.1	0.8	0.7

Intersection	
Intersection Delay, s/veh	15.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	235	174	37	148	17	219	33	44	52	16	12
Future Vol, veh/h	8	235	174	37	148	17	219	33	44	52	16	12
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	2	2	2	2	0	2	2	2	0	2	0
Mvmt Flow	9	270	200	43	170	20	252	38	51	60	18	14
Number of Lanes	1	1	1	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	3
HCM Control Delay	15.2	14.5	17.2	13.1
HCM LOS	C	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	65%
Vol Thru, %	0%	43%	0%	100%	0%	0%	90%	20%
Vol Right, %	0%	57%	0%	0%	100%	0%	10%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	219	77	8	235	174	37	165	80
LT Vol	219	0	8	0	0	37	0	52
Through Vol	0	33	0	235	0	0	148	16
RT Vol	0	44	0	0	174	0	17	12
Lane Flow Rate	252	89	9	270	200	43	190	92
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.543	0.168	0.019	0.528	0.351	0.095	0.395	0.21
Departure Headway (Hd)	7.763	6.851	7.514	7.038	6.324	8.081	7.494	8.21
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	466	524	477	513	568	444	480	437
Service Time	5.506	4.594	5.256	4.781	4.066	5.83	5.242	5.966
HCM Lane V/C Ratio	0.541	0.17	0.019	0.526	0.352	0.097	0.396	0.211
HCM Control Delay	19.4	11	10.4	17.4	12.5	11.7	15.1	13.1
HCM Lane LOS	C	B	B	C	B	B	C	B
HCM 95th-tile Q	3.2	0.6	0.1	3	1.6	0.3	1.9	0.8

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	204	104	27	116	10	57	10	27	24	9	29
Future Vol, veh/h	24	204	104	27	116	10	57	10	27	24	9	29
Conflicting Peds, #/hr	0	0	53	0	0	6	0	0	24	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	28	234	120	31	133	11	66	11	31	28	10	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	150	0	0	407	0	0	540	615	254	410	670	81
Stage 1	-	-	-	-	-	-	403	403	-	207	207	-
Stage 2	-	-	-	-	-	-	137	212	-	203	463	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	1436	-	-	1155	-	-	427	407	748	528	379	966
Stage 1	-	-	-	-	-	-	598	601	-	779	732	-
Stage 2	-	-	-	-	-	-	855	728	-	783	565	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1428	-	-	1097	-	-	368	366	694	461	341	958
Mov Cap-2 Maneuver	-	-	-	-	-	-	368	366	-	461	341	-
Stage 1	-	-	-	-	-	-	557	560	-	760	707	-
Stage 2	-	-	-	-	-	-	788	703	-	702	526	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.5	16.3	12.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	425	1428	-	-	1097	-	-	570
HCM Lane V/C Ratio	0.254	0.019	-	-	0.028	-	-	0.125
HCM Control Delay (s)	16.3	7.6	-	-	8.4	-	-	12.2
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1	0.1	-	-	0.1	-	-	0.4

HCM 2010 TWSC
13: Camino Colegio & Manchester Ave 05/16/2019

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	204	104	27	116	10	57	10	27	24	9	29
Future Vol, veh/h	24	204	104	27	116	10	57	10	27	24	9	29
Conflicting Peds, #/hr	0	0	53	0	0	6	0	0	24	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	160	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	28	234	120	31	133	11	66	11	31	28	10	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	150	0	0	407	0	0	628	615	371	602	670	148
Stage 1	-	-	-	-	-	-	403	403	-	207	207	-
Stage 2	-	-	-	-	-	-	225	212	-	395	463	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1437	-	-	1157	-	-	397	408	677	413	379	901
Stage 1	-	-	-	-	-	-	626	601	-	797	732	-
Stage 2	-	-	-	-	-	-	780	729	-	632	566	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1429	-	-	1099	-	-	341	367	628	359	341	893
Mov Cap-2 Maneuver	-	-	-	-	-	-	341	367	-	359	341	-
Stage 1	-	-	-	-	-	-	583	560	-	777	707	-
Stage 2	-	-	-	-	-	-	717	704	-	564	527	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.5	17.5	13.5
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	396	1429	-	-	1099	-	-	493
HCM Lane V/C Ratio	0.273	0.019	-	-	0.028	-	-	0.145
HCM Control Delay (s)	17.5	7.6	-	-	8.4	-	-	13.5
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1.1	0.1	-	-	0.1	-	-	0.5

HCM 2010 TWSC
14: Camino Colegio & Mainsail Dr 05/16/2019

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	235	10	11	111	6	33	0	25	26	0	9
Future Vol, veh/h	9	235	10	11	111	6	33	0	25	26	0	9
Conflicting Peds, #/hr	0	0	0	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	2	2	2	2	2	2	2	2	1	2	1
Mvmt Flow	10	255	11	12	121	7	36	0	27	28	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	131	0	0	266	0	0	366	436	133	300	438	67
Stage 1	-	-	-	-	-	-	281	281	-	152	152	-
Stage 2	-	-	-	-	-	-	85	155	-	148	286	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.52	6.54	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.51	4.02	3.31
Pot Cap-1 Maneuver	1459	-	-	1295	-	-	565	512	892	632	511	986
Stage 1	-	-	-	-	-	-	702	677	-	838	771	-
Stage 2	-	-	-	-	-	-	913	768	-	842	674	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1455	-	-	1295	-	-	552	502	892	603	501	983
Mov Cap-2 Maneuver	-	-	-	-	-	-	552	502	-	603	501	-
Stage 1	-	-	-	-	-	-	697	672	-	830	761	-
Stage 2	-	-	-	-	-	-	895	758	-	811	669	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.7	11	10.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	661	1455	-	-	1295	-	-	670
HCM Lane V/C Ratio	0.095	0.007	-	-	0.009	-	-	0.057
HCM Control Delay (s)	11	7.5	-	-	7.8	0	-	10.7
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	235	10	11	111	6	33	0	25	26	0	9
Future Vol, veh/h	9	235	10	11	111	6	33	0	25	26	0	9
Conflicting Peds, #/hr	0	0	0	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	140	-	-	160	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	2	2	2	2	2	2	2	2	1	2	1
Mvmt Flow	10	255	11	12	121	7	36	0	27	28	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	131	0	0	266	0	0	435	436	261	446	438	128
Stage 1	-	-	-	-	-	-	281	281	-	152	152	-
Stage 2	-	-	-	-	-	-	154	155	-	294	286	-
Critical Hdwy	4.11	-	-	4.12	-	-	7.12	6.52	6.22	7.11	6.52	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.11	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.11	5.52	-
Follow-up Hdwy	2.209	-	-	2.218	-	-	3.518	4.018	3.318	3.509	4.018	3.309
Pot Cap-1 Maneuver	1460	-	-	1298	-	-	531	514	778	524	512	925
Stage 1	-	-	-	-	-	-	726	678	-	853	772	-
Stage 2	-	-	-	-	-	-	848	769	-	716	675	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1456	-	-	1298	-	-	519	504	778	498	502	922
Mov Cap-2 Maneuver	-	-	-	-	-	-	519	504	-	498	502	-
Stage 1	-	-	-	-	-	-	721	673	-	844	763	-
Stage 2	-	-	-	-	-	-	831	760	-	686	670	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.7	11.6	11.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	606	1456	-	-	1298	-	-	565
HCM Lane V/C Ratio	0.104	0.007	-	-	0.009	-	-	0.067
HCM Control Delay (s)	11.6	7.5	-	-	7.8	-	-	11.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	89	197	73	75	135	55
Future Vol, veh/h	89	197	73	75	135	55
Conflicting Peds, #/hr	0	4	0	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	140	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	216	80	82	148	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	427	189	215	0	-	0
Stage 1	185	-	-	-	-	-
Stage 2	242	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	584	853	1355	-	-	-
Stage 1	847	-	-	-	-	-
Stage 2	798	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	542	844	1346	-	-	-
Mov Cap-2 Maneuver	542	-	-	-	-	-
Stage 1	791	-	-	-	-	-
Stage 2	792	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	3.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1346	-	542	844	-	-
HCM Lane V/C Ratio	0.06	-	0.18	0.256	-	-
HCM Control Delay (s)	7.8	-	13.1	10.7	-	-
HCM Lane LOS	A	-	B	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.7	1	-	-

HCM 2010 TWSC
16: Bodway Pkwy & Waterside Ln
05/16/2019

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	9	0	0	0	0	142	0	0	331	2
Future Vol, veh/h	0	0	9	0	0	0	0	142	0	0	331	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	87	92	87	92	87	87	87	87	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	0	0	10	0	0	0	0	163	0	0	380	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	381	-	-	165	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	-	-	6.2	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	666	0	0	885	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	666	-	-	883	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.5	0	0	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	666	-	-	-
HCM Lane V/C Ratio	-	-	0.015	-	-	-
HCM Control Delay (s)	-	-	10.5	0	-	-
HCM Lane LOS	-	-	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0	-	-	-

HCM 2010 TWSC
17: Bodway Pkwy & Wisdom Ln
05/16/2019

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	18	0	0	0	6	134	0	0	337	4
Future Vol, veh/h	3	0	18	0	0	0	6	134	0	0	337	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	50	-	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	87	92	87	92	87	87	87	87	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	3	0	20	0	0	0	7	154	0	0	387	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	557	559	389	569	561	156	391	0	0	156	0	0
Stage 1	389	389	-	170	170	-	-	-	-	-	-	-
Stage 2	168	170	-	399	391	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.52	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4.018	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	441	438	659	436	436	895	1168	-	-	1436	-	-
Stage 1	635	608	-	837	758	-	-	-	-	-	-	-
Stage 2	834	758	-	631	607	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	439	434	659	420	432	893	1168	-	-	1433	-	-
Mov Cap-2 Maneuver	439	434	-	420	432	-	-	-	-	-	-	-
Stage 1	631	608	-	829	751	-	-	-	-	-	-	-
Stage 2	828	751	-	612	607	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	0	0.3	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1168	-	-	615	-	-	1433	-	-
HCM Lane V/C Ratio	0.006	-	-	0.037	-	-	-	-	-
HCM Control Delay (s)	8.1	0	-	11.1	0	0	0	-	-
HCM Lane LOS	A	A	-	B	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-	0	-	-

HCM 2010 Roundabout
18: SOMO Ave/Valley House Dr & Bodway Pkwy

05/16/2019

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	188	317	58	408
Demand Flow Rate, veh/h	192	323	59	417
Vehicles Circulating, veh/h	400	52	541	218
Vehicles Exiting, veh/h	234	548	51	157
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	2	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.8	6.4	6.6	9.7
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	192	323	59	417
Cap Entry Lane, veh/h	757	1073	658	909
Entry HV Adj Factor	0.981	0.982	0.977	0.978
Flow Entry, veh/h	188	317	58	408
Cap Entry, veh/h	743	1053	643	889
V/C Ratio	0.254	0.301	0.090	0.459
Control Delay, s/veh	7.8	6.4	6.6	9.7
LOS	A	A	A	A
95th %tile Queue, veh	1	1	0	2

HCM 2010 Signalized Intersection Summary
19: Petaluma Hill Rd & Valley House Dr

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	0	400	1	0	2	206	756	4	8	760	92
Future Volume (veh/h)	93	0	400	1	0	2	206	756	4	8	760	92
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	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	102	0	196	1	0	0	226	831	4	9	835	97
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	271	0	242	2	0	0	268	1170	6	16	913	775
Arrive On Green	0.15	0.00	0.15	0.00	0.00	0.00	0.15	0.63	0.63	0.01	0.49	0.49
Sat Flow, veh/h	1774	0	1583	1774	0	0	1774	1852	9	1774	1863	1582
Grp Volume(v), veh/h	102	0	196	1	0	0	226	0	835	9	835	97
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	0	1774	0	1861	1774	1863	1582
Q Serve(g_s), s	4.5	0.0	10.5	0.0	0.0	0.0	10.9	0.0	26.3	0.4	36.4	2.9
Cycle Q Clear(g_c), s	4.5	0.0	10.5	0.0	0.0	0.0	10.9	0.0	26.3	0.4	36.4	2.9
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	271	0	242	2	0	0	268	0	1176	16	913	775
V/C Ratio(X)	0.38	0.00	0.81	0.49	0.00	0.00	0.84	0.00	0.71	0.57	0.91	0.13
Avail Cap(c_a), veh/h	505	0	451	81	0	0	455	0	1463	81	1071	910
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	0.0	35.9	43.8	0.0	0.0	36.3	0.0	10.8	43.3	20.7	12.2
Incr Delay (d2), s/veh	0.9	0.0	6.3	56.0	0.0	0.0	7.2	0.0	1.2	11.1	10.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	5.0	0.1	0.0	0.0	5.9	0.0	13.6	0.3	21.3	1.3
LnGrp Delay(d),s/veh	34.3	0.0	42.3	99.8	0.0	0.0	43.4	0.0	12.0	54.4	31.5	12.2
LnGrp LOS	C		D	F			D		B	D	C	B
Approach Vol, veh/h		298			1			1061			941	
Approach Delay, s/veh		39.5			99.8			18.7			29.7	
Approach LOS		D			F			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	60.5		17.9	17.7	48.0		4.1
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.0
Max Green Setting (Gmax), s	4.8	69.0		25.0	22.5	50.5		4.0
Max Q Clear Time (g_c+I1), s	12.4	28.3		12.5	12.9	38.4		2.0
Green Ext Time (p_c), s	0.0	6.7		0.9	0.4	4.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	25.9
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↱		↰	↱	
Traffic Vol, veh/h	23	40	31	7	44	28	27	253	5	15	540	39
Future Vol, veh/h	23	40	31	7	44	28	27	253	5	15	540	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	45	35	8	49	31	30	284	6	17	607	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1050	1013	629	1050	1032	287	651	0	0	290	0	0
Stage 1	663	663	-	347	347	-	-	-	-	-	-	-
Stage 2	387	350	-	703	685	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	205	239	482	205	233	752	935	-	-	1272	-	-
Stage 1	450	459	-	669	635	-	-	-	-	-	-	-
Stage 2	637	633	-	428	448	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	157	228	482	156	223	752	935	-	-	1272	-	-
Mov Cap-2 Maneuver	157	228	-	156	223	-	-	-	-	-	-	-
Stage 1	436	453	-	648	615	-	-	-	-	-	-	-
Stage 2	543	613	-	353	442	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30.7	23.4	0.9	0.2
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	935	-	-	243	283	1272	-	-
HCM Lane V/C Ratio	0.032	-	-	0.435	0.314	0.013	-	-
HCM Control Delay (s)	9	-	-	30.7	23.4	7.9	-	-
HCM Lane LOS	A	-	-	D	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.1	1.3	0	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			↰	↱	↰	↱		↰	↱	
Traffic Vol, veh/h	23	40	31	7	44	28	27	253	5	15	540	39
Future Vol, veh/h	23	40	31	7	44	28	27	253	5	15	540	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	-	-	50	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	45	35	8	49	31	30	284	6	17	607	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1050	1013	629	1050	1032	287	651	0	0	290	0	0
Stage 1	663	663	-	347	347	-	-	-	-	-	-	-
Stage 2	387	350	-	703	685	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	205	239	482	205	233	752	935	-	-	1272	-	-
Stage 1	450	459	-	669	635	-	-	-	-	-	-	-
Stage 2	637	633	-	428	448	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	157	228	482	156	223	752	935	-	-	1272	-	-
Mov Cap-2 Maneuver	157	228	-	156	223	-	-	-	-	-	-	-
Stage 1	436	453	-	648	615	-	-	-	-	-	-	-
Stage 2	543	613	-	353	442	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24.2	21.8	0.9	0.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	935	-	-	157	296	211	752	1272	-	-
HCM Lane V/C Ratio	0.032	-	-	0.165	0.27	0.272	0.042	0.013	-	-
HCM Control Delay (s)	9	-	-	32.4	21.6	28.3	10	7.9	-	-
HCM Lane LOS	A	-	-	D	C	D	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	1.1	1.1	0.1	0	-	-

HCM 2010 TWSC
21: E Railroad Ave & Bodway Pkwy 05/16/2019

Intersection						
Int Delay, s/veh	3.8					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	67	70	23	73	19
Future Vol, veh/h	8	67	70	23	73	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	9	77	80	26	84	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	106	0	-	0	188	93
Stage 1	-	-	-	-	93	-
Stage 2	-	-	-	-	95	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1491	-	-	-	803	967
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	931	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1491	-	-	-	798	967
Mov Cap-2 Maneuver	-	-	-	-	798	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	931	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1491	-	-	-	828
HCM Lane V/C Ratio	0.006	-	-	-	0.128
HCM Control Delay (s)	7.4	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

HCM 2010 TWSC
22: Petaluma Hill Rd & E Railroad Ave 05/16/2019

Intersection												
Int Delay, s/veh	58.2											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	0	85	1	1	10	35	910	0	33	1076	57
Future Vol, veh/h	55	0	85	1	1	10	35	910	0	33	1076	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	0	90	1	1	11	37	968	0	35	1145	61

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2263	2257	1145	2333	2318	968	1206	0	0	968	0	0
Stage 1	1215	1215	-	1042	1042	-	-	-	-	-	-	-
Stage 2	1048	1042	-	1291	1276	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 29	41	243	26	38	308	579	-	-	712	-	-
Stage 1	222	254	-	277	307	-	-	-	-	-	-	-
Stage 2	275	307	-	201	238	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 25	36	243	15	34	308	579	-	-	712	-	-
Mov Cap-2 Maneuver	~ 25	36	-	15	34	-	-	-	-	-	-	-
Stage 1	208	242	-	259	287	-	-	-	-	-	-	-
Stage 2	248	287	-	120	226	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 931.6	49.8	0.4	0.3
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	579	-	-	55	93	712	-	-
HCM Lane V/C Ratio	0.064	-	-	2.708	0.137	0.049	-	-
HCM Control Delay (s)	11.6	-	-	$ 931.6	49.8	10.3	-	-
HCM Lane LOS	B	-	-	F	E	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	15.4	0.5	0.2	-	-

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

HCM 2010 Signalized Intersection Summary
22: Petaluma Hill Rd & E Railroad Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	0	85	1	1	10	35	910	0	33	1076	57
Future Volume (veh/h)	55	0	85	1	1	10	35	910	0	33	1076	57
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	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	59	0	90	1	1	11	37	968	0	35	1145	61
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	270	0	198	54	27	170	88	1187	0	91	1190	1012
Arrive On Green	0.12	0.00	0.12	0.12	0.12	0.12	0.05	0.64	0.00	0.05	0.64	0.64
Sat Flow, veh/h	1418	0	1583	34	213	1361	1774	1863	0	1774	1863	1583
Grp Volume(v), veh/h	59	0	90	13	0	0	37	968	0	35	1145	61
Grp Sat Flow(s),veh/h/ln	1418	0	1583	1608	0	0	1774	1863	0	1774	1863	1583
Q Serve(g_s), s	2.3	0.0	4.1	0.0	0.0	0.0	1.6	30.5	0.0	1.5	44.7	1.1
Cycle Q Clear(g_c), s	2.8	0.0	4.1	0.5	0.0	0.0	1.6	30.5	0.0	1.5	44.7	1.1
Prop In Lane	1.00		1.00	0.08		0.85	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	270	0	198	251	0	0	88	1187	0	91	1190	1012
V/C Ratio(X)	0.22	0.00	0.46	0.05	0.00	0.00	0.42	0.82	0.00	0.38	0.96	0.06
Avail Cap(c_a), veh/h	437	0	387	449	0	0	160	1964	0	105	1907	1621
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	0.0	31.5	30.0	0.0	0.0	35.8	10.7	0.0	35.6	13.1	5.3
Incr Delay (d2), s/veh	0.1	0.0	0.6	0.0	0.0	0.0	1.2	0.5	0.0	1.0	7.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.8	0.2	0.0	0.0	0.8	15.5	0.0	0.8	24.9	0.5
LnGrp Delay(d),s/veh	31.1	0.0	32.1	30.0	0.0	0.0	37.0	11.2	0.0	36.6	20.3	5.3
LnGrp LOS	C		C	C			D	B		D	C	A
Approach Vol, veh/h		149			13			1005			1241	
Approach Delay, s/veh		31.7			30.0			12.1			20.0	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.5	54.5		14.7	8.3	54.6		14.7
Change Period (Y+Rc), s	4.5	5.0		5.0	4.5	5.0		* 5
Max Green Setting (Gmax), s	4.6	81.9		19.0	7.0	79.5		* 20
Max Q Clear Time (g_c+I1), s	3.5	32.5		6.1	3.6	46.7		2.5
Green Ext Time (p_c), s	0.0	2.1		0.1	0.0	2.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.5
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	147	12	18	58	452	9	378	6	486	593	13
Future Volume (veh/h)	25	147	12	18	58	452	9	378	6	486	593	13
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		0.98	1.00		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	1976	1937	1976	1976	1937	1976	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	27	160	10	20	63	393	10	411	4	528	645	13
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	420	24	48	78	420	10	415	4	604	620	12
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.22	0.22	0.22	0.34	0.34	0.34
Sat Flow, veh/h	120	1380	80	36	256	1382	45	1868	18	1774	1820	37
Grp Volume(v), veh/h	197	0	0	476	0	0	425	0	0	528	0	658
Grp Sat Flow(s),veh/h/ln	1581	0	0	1674	0	0	1931	0	0	1774	0	1856
Q Serve(g_s), s	0.0	0.0	0.0	13.0	0.0	0.0	22.2	0.0	0.0	28.3	0.0	34.5
Cycle Q Clear(g_c), s	8.1	0.0	0.0	28.0	0.0	0.0	22.2	0.0	0.0	28.3	0.0	34.5
Prop In Lane	0.14		0.05	0.04		0.83	0.02		0.01	1.00		0.02
Lane Grp Cap(c), veh/h	521	0	0	546	0	0	429	0	0	604	0	632
V/C Ratio(X)	0.38	0.00	0.00	0.87	0.00	0.00	0.99	0.00	0.00	0.87	0.00	1.04
Avail Cap(c_a), veh/h	666	0	0	688	0	0	429	0	0	604	0	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.3	0.0	0.0	34.2	0.0	0.0	39.3	0.0	0.0	31.4	0.0	33.4
Incr Delay (d2), s/veh	0.2	0.0	0.0	8.4	0.0	0.0	41.0	0.0	0.0	12.9	0.0	46.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	0.0	14.2	0.0	0.0	16.7	0.0	0.0	16.0	0.0	25.8
LnGrp Delay(d),s/veh	27.5	0.0	0.0	42.6	0.0	0.0	80.3	0.0	0.0	44.3	0.0	80.4
LnGrp LOS	C			D			F			D		F
Approach Vol, veh/h		197			476			425			1186	
Approach Delay, s/veh		27.5			42.6			80.3			64.3	
Approach LOS		C			D			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		27.0		35.3		39.0		35.3
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		22.5		39.5		34.5		39.5
Max Q Clear Time (g_c+I1), s		24.2		10.1		36.5		30.0
Green Ext Time (p_c), s		0.0		0.4		0.0		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	59.6
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	147	12	18	58	452	9	378	6	486	593	13
Future Volume (veh/h)	25	147	12	18	58	452	9	378	6	486	593	13
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		0.98	1.00		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	1976	1937	1976	1976	1937	1937	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	27	160	10	20	63	393	10	411	4	528	645	13
Adj No. of Lanes	0	1	0	0	1	1	0	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	267	16	105	274	915	12	475	5	681	698	14
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.25	0.25	0.25	0.38	0.38	0.38
Sat Flow, veh/h	140	1549	90	247	1592	1647	45	1868	18	1774	1820	37
Grp Volume(v), veh/h	197	0	0	83	0	393	425	0	0	528	0	658
Grp Sat Flow(s),veh/h/ln	1779	0	0	1839	0	1647	1931	0	0	1774	0	1856
Q Serve(g_s), s	2.2	0.0	0.0	0.0	0.0	9.9	15.0	0.0	0.0	18.6	0.0	24.1
Cycle Q Clear(g_c), s	7.0	0.0	0.0	2.6	0.0	9.9	15.0	0.0	0.0	18.6	0.0	24.1
Prop In Lane	0.14		0.05	0.24		1.00	0.02		0.01	1.00		0.02
Lane Grp Cap(c), veh/h	364	0	0	379	0	915	491	0	0	681	0	713
V/C Ratio(X)	0.54	0.00	0.00	0.22	0.00	0.43	0.86	0.00	0.00	0.78	0.00	0.92
Avail Cap(c_a), veh/h	738	0	0	759	0	1280	638	0	0	1122	0	1174
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.2	0.0	0.0	25.5	0.0	9.2	25.4	0.0	0.0	19.2	0.0	20.9
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.1	0.0	0.1	9.0	0.0	0.0	0.7	0.0	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.0	0.0	1.4	0.0	7.7	9.1	0.0	0.0	9.2	0.0	13.3
LnGrp Delay(d),s/veh	27.7	0.0	0.0	25.6	0.0	9.3	34.3	0.0	0.0	20.0	0.0	26.0
LnGrp LOS	C			C		A	C			B		C
Approach Vol, veh/h		197			476			425			1186	
Approach Delay, s/veh		27.7			12.2			34.3			23.3	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		22.6		16.7		31.8		16.7
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		23.5		28.0		45.0		28.0
Max Q Clear Time (g_c+I1), s		17.0		9.0		26.1		11.9
Green Ext Time (p_c), s		1.1		0.3		1.2		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	23.4
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
24: N McDowell Blvd & Old Redwood Hwy

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	619	714	121	619	17	388	61	78	7	23	45
Future Volume (veh/h)	220	619	714	121	619	17	388	61	78	7	23	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	229	645	0	126	645	14	450	0	33	7	24	1
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	218	844	656	696	1825	40	563	0	249	105	110	93
Arrive On Green	0.21	0.40	0.00	0.39	0.52	0.52	0.16	0.00	0.16	0.06	0.06	0.06
Sat Flow, veh/h	1774	3539	1583	1774	3542	77	3548	0	1565	1774	1863	1571
Grp Volume(v), veh/h	229	645	0	126	322	337	450	0	33	7	24	1
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1849	1774	0	1565	1774	1863	1571
Q Serve(g_s), s	16.0	20.5	0.0	6.0	14.0	14.0	15.9	0.0	2.4	0.5	1.6	0.1
Cycle Q Clear(g_c), s	16.0	20.5	0.0	6.0	14.0	14.0	15.9	0.0	2.4	0.5	1.6	0.1
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	218	844	656	696	912	953	563	0	249	105	110	93
V/C Ratio(X)	1.05	0.76	0.00	0.18	0.35	0.35	0.80	0.00	0.13	0.07	0.22	0.01
Avail Cap(c_a), veh/h	218	844	656	696	912	953	1010	0	446	413	434	366
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.6	36.0	0.0	25.9	18.7	18.7	52.7	0.0	47.0	57.8	58.3	57.6
Incr Delay (d2), s/veh	68.2	5.3	0.0	0.0	1.1	1.0	1.0	0.0	0.1	0.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.9	10.6	0.0	3.0	7.1	7.4	7.9	0.0	1.0	0.2	0.8	0.0
LnGrp Delay(d),s/veh	119.8	41.3	0.0	25.9	19.8	19.7	53.7	0.0	47.1	57.9	58.7	57.6
LnGrp LOS	F	D		C	B	B	D		D	E	E	E
Approach Vol, veh/h		874			785			483			32	
Approach Delay, s/veh		61.9			20.7			53.2			58.4	
Approach LOS		E			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.0	36.0		12.4	20.0	72.0		25.6
Change Period (Y+Rc), s	5.0	* 5		* 4.7	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	* 31		* 30	16.0	28.0		37.0
Max Q Clear Time (g_c+I1), s	18.0	22.5		3.6	18.0	16.0		17.9
Green Ext Time (p_c), s	0.1	3.8		0.1	0.0	4.6		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	45.0
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
25: US 101 NB Off-ramp & Old Redwood Hwy

05/16/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1073	378	0	1053	122	488
Future Volume (veh/h)	1073	378	0	1053	122	488
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	1095	0	0	1074	124	380
Adj No. of Lanes	2	1	0	2	2	2
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2353	1053	0	2353	613	497
Arrive On Green	0.66	0.00	0.00	1.00	0.18	0.18
Sat Flow, veh/h	3632	1583	0	3725	3442	2787
Grp Volume(v), veh/h	1095	0	0	1074	124	380
Grp Sat Flow(s),veh/h/ln	1770	1583	0	1770	1721	1393
Q Serve(g_s), s	9.8	0.0	0.0	0.0	2.0	8.4
Cycle Q Clear(g_c), s	9.8	0.0	0.0	0.0	2.0	8.4
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2353	1053	0	2353	613	497
V/C Ratio(X)	0.47	0.00	0.00	0.46	0.20	0.77
Avail Cap(c_a), veh/h	2353	1053	0	2353	895	725
HCM Platoon Ratio	1.00	1.00	1.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.88	1.00	1.00
Uniform Delay (d), s/veh	5.3	0.0	0.0	0.0	22.8	25.4
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.6	0.2	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	0.0	0.2	1.0	3.4
LnGrp Delay(d),s/veh	5.9	0.0	0.0	0.6	22.9	28.3
LnGrp LOS	A			A	C	C
Approach Vol, veh/h	1095			1074	504	
Approach Delay, s/veh	5.9			0.6	27.0	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		48.3				48.3		16.7
Change Period (Y+Rc), s		5.1				5.1		5.1
Max Green Setting (Gmax), s		37.9				37.9		16.9
Max Q Clear Time (g_c+I1), s		11.8				2.0		10.4
Green Ext Time (p_c), s		11.9				13.4		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	7.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1: Snyder Ln & Rohnert Park Expwy

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	338	451	293	74	404	185	256	418	89	211	482	302
Future Volume (veh/h)	338	451	293	74	404	185	256	418	89	211	482	302
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		0.98	1.00		0.99	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	389	518	323	85	464	208	294	480	99	243	554	333
Adj No. of Lanes	2	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	458	760	555	203	694	509	479	1176	686	442	1138	702
Arrive On Green	0.13	0.21	0.21	0.11	0.20	0.20	0.14	0.33	0.33	0.13	0.32	0.32
Sat Flow, veh/h	3442	3539	1558	1774	3539	1560	3442	3539	1520	3442	3539	1528
Grp Volume(v), veh/h	389	518	323	85	464	208	294	480	99	243	554	333
Grp Sat Flow(s),veh/h/ln	1721	1770	1558	1774	1770	1560	1721	1770	1520	1721	1770	1528
Q Serve(g_s), s	10.3	12.6	15.8	4.2	11.3	9.7	7.5	9.8	3.6	6.2	11.7	14.2
Cycle Q Clear(g_c), s	10.3	12.6	15.8	4.2	11.3	9.7	7.5	9.8	3.6	6.2	11.7	14.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	458	760	555	203	694	509	479	1176	686	442	1138	702
V/C Ratio(X)	0.85	0.68	0.58	0.42	0.67	0.41	0.61	0.41	0.14	0.55	0.49	0.47
Avail Cap(c_a), veh/h	553	1719	977	285	1715	959	553	1715	917	553	1715	951
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	33.7	24.5	38.4	34.7	24.6	37.8	24.1	15.3	38.1	25.5	17.7
Incr Delay (d2), s/veh	8.9	0.4	0.4	0.5	0.4	0.2	0.8	0.1	0.0	0.4	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	6.2	6.8	2.1	5.6	4.2	3.6	4.7	1.5	3.0	5.7	5.9
LnGrp Delay(d),s/veh	48.4	34.1	24.9	38.9	35.1	24.7	38.6	24.1	15.3	38.5	25.6	17.9
LnGrp LOS	D	C	C	D	D	C	D	C	B	D	C	B
Approach Vol, veh/h		1230			757			873			1130	
Approach Delay, s/veh		36.2			32.7			28.0			26.1	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	36.8	14.7	25.8	17.0	35.8	16.4	24.1
Change Period (Y+Rc), s	4.0	5.8	4.0	* 5.8	4.0	5.8	4.0	* 5.8
Max Green Setting (Gmax), s	15.0	45.2	15.0	* 45	15.0	45.2	15.0	* 45
Max Q Clear Time (g_c+I1), s	8.2	11.8	6.2	17.8	9.5	16.2	12.3	13.3
Green Ext Time (p_c), s	0.1	1.1	0.0	1.3	0.1	1.4	0.1	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	30.9
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
2: US 101 SB Ramps & Gravenstein Hwy

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	611	314	313	946	0	0	0	0	436	0	308
Future Volume (veh/h)	0	611	314	313	946	0	0	0	0	436	0	308
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	0	1863	1937	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	636	233	326	985	0				454	0	214
Adj No. of Lanes	0	2	1	1	2	0				2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1142	523	674	2632	0				601	0	271
Arrive On Green	0.00	0.32	0.32	0.76	1.00	0.00				0.17	0.00	0.17
Sat Flow, veh/h	0	3632	1622	1774	3632	0				3442	0	1555
Grp Volume(v), veh/h	0	636	233	326	985	0				454	0	214
Grp Sat Flow(s),veh/h/ln	0	1770	1622	1774	1770	0				1721	0	1555
Q Serve(g_s), s	0.0	16.3	12.5	7.7	0.0	0.0				13.8	0.0	14.5
Cycle Q Clear(g_c), s	0.0	16.3	12.5	7.7	0.0	0.0				13.8	0.0	14.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1142	523	674	2632	0				601	0	271
V/C Ratio(X)	0.00	0.56	0.45	0.48	0.37	0.00				0.76	0.00	0.79
Avail Cap(c_a), veh/h	0	1142	523	674	2632	0				829	0	375
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.80	0.80	0.93	0.93	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	30.8	29.5	9.1	0.0	0.0				43.2	0.0	43.5
Incr Delay (d2), s/veh	0.0	1.6	2.2	0.2	0.4	0.0				1.5	0.0	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.2	5.9	3.6	0.1	0.0				6.7	0.0	6.6
LnGrp Delay(d),s/veh	0.0	32.3	31.7	9.3	0.4	0.0				44.7	0.0	48.4
LnGrp LOS		C	C	A	A					D		D
Approach Vol, veh/h		869			1311						668	
Approach Delay, s/veh		32.2			2.6						45.9	
Approach LOS		C			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	16.3	40.0		23.7		86.3		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	14.5	35.5		26.5		74.5		
Max Q Clear Time (g_c+I1), s	15.7	18.3		16.5		2.0		
Green Ext Time (p_c), s	0.3	4.8		2.7		7.4		

Intersection Summary	
HCM 2010 Ctrl Delay	21.8
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
3: US 101 NB Off-ramp & Gravenstein Hwy

05/15/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1046	0	0	864	408	125
Future Volume (veh/h)	1046	0	0	864	408	125
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863
Adj Flow Rate, veh/h	1090	0	0	900	425	105
Adj No. of Lanes	2	0	0	3	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	2614	0	0	3756	618	284
Arrive On Green	0.49	0.00	0.00	0.74	0.18	0.18
Sat Flow, veh/h	3725	0	0	5421	3442	1583
Grp Volume(v), veh/h	1090	0	0	900	425	105
Grp Sat Flow(s),veh/h/ln	1770	0	0	1695	1721	1583
Q Serve(g_s), s	21.6	0.0	0.0	6.2	12.7	6.4
Cycle Q Clear(g_c), s	21.6	0.0	0.0	6.2	12.7	6.4
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2614	0	0	3756	618	284
V/C Ratio(X)	0.42	0.00	0.00	0.24	0.69	0.37
Avail Cap(c_a), veh/h	2614	0	0	3756	1173	540
HCM Platoon Ratio	0.67	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.00	0.00	0.63	1.00	1.00
Uniform Delay (d), s/veh	12.7	0.0	0.0	4.6	42.2	39.6
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.1	1.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	0.0	0.0	2.9	6.1	2.9
LnGrp Delay(d),s/veh	13.1	0.0	0.0	4.7	43.6	40.4
LnGrp LOS	B			A	D	D
Approach Vol, veh/h	1090			900	530	
Approach Delay, s/veh	13.1			4.7	43.0	
Approach LOS	B			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		85.7				85.7		24.3
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		63.5				63.5		37.5
Max Q Clear Time (g_c+I1), s		23.6				8.2		14.7
Green Ext Time (p_c), s		17.1				14.0		5.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Old Redwood Hwy & Gravenstein Hwy/Gravenstein Way

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	551	75	547	58	105	68	304	699	28	25	117	449
Future Volume (veh/h)	551	75	547	58	105	68	304	699	28	25	117	449
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	568	77	0	60	108	59	313	721	20	26	121	447
Adj No. of Lanes	2	1	1	1	1	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	731	396	336	210	133	73	395	802	22	431	453	721
Arrive On Green	0.21	0.21	0.00	0.12	0.12	0.12	0.22	0.22	0.22	0.24	0.24	0.24
Sat Flow, veh/h	3442	1863	1583	1774	1128	616	1774	3604	100	1774	1863	1583
Grp Volume(v), veh/h	568	77	0	60	0	167	313	373	368	26	121	447
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	0	1744	1774	1863	1841	1774	1863	1583
Q Serve(g_s), s	13.4	2.9	0.0	2.7	0.0	8.0	14.3	16.7	16.7	1.0	4.5	18.4
Cycle Q Clear(g_c), s	13.4	2.9	0.0	2.7	0.0	8.0	14.3	16.7	16.7	1.0	4.5	18.4
Prop In Lane	1.00		1.00	1.00		0.35	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	731	396	336	210	0	206	395	415	410	431	453	721
V/C Ratio(X)	0.78	0.19	0.00	0.29	0.00	0.81	0.79	0.90	0.90	0.06	0.27	0.62
Avail Cap(c_a), veh/h	960	519	442	495	0	486	402	422	417	515	541	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	27.8	0.0	34.6	0.0	37.0	31.6	32.5	32.5	25.0	26.4	17.8
Incr Delay (d2), s/veh	2.1	0.1	0.0	0.3	0.0	2.9	9.4	20.7	21.0	0.0	0.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	1.5	0.0	1.3	0.0	4.0	8.1	11.0	10.9	0.5	2.3	10.7
LnGrp Delay(d),s/veh	34.1	27.9	0.0	34.9	0.0	39.8	41.0	53.2	53.5	25.0	26.5	18.5
LnGrp LOS	C	C		C		D	D	D	D	C	C	B
Approach Vol, veh/h		645			227			1054			594	
Approach Delay, s/veh		33.3			38.5			49.7			20.4	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		22.8		25.4		14.2		23.7
Change Period (Y+Rc), s		4.5		4.5		4.0		4.5
Max Green Setting (Gmax), s		24.0		25.0		24.0		19.5
Max Q Clear Time (g_c+I1), s		15.4		20.4		10.0		18.7
Green Ext Time (p_c), s		2.4		0.5		0.2		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	37.6
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	255	6	22	436	527	17	413	11	329	333	63
Future Volume (veh/h)	87	255	6	22	436	527	17	413	11	329	333	63
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	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	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	91	266	4	23	454	502	18	430	10	343	347	61
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	724	601	35	607	541	29	574	13	379	670	561
Arrive On Green	0.07	0.39	0.39	0.02	0.34	0.34	0.02	0.16	0.16	0.21	0.36	0.36
Sat Flow, veh/h	1774	1863	1548	1774	1770	1579	1774	3533	82	1774	1863	1559
Grp Volume(v), veh/h	91	266	4	23	454	502	18	215	225	343	347	61
Grp Sat Flow(s),veh/h/ln	1774	1863	1548	1774	1770	1579	1774	1770	1846	1774	1863	1559
Q Serve(g_s), s	4.2	8.5	0.1	1.1	18.9	25.6	0.8	9.7	9.7	15.7	12.2	2.2
Cycle Q Clear(g_c), s	4.2	8.5	0.1	1.1	18.9	25.6	0.8	9.7	9.7	15.7	12.2	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	116	724	601	35	607	541	29	288	300	379	670	561
V/C Ratio(X)	0.78	0.37	0.01	0.65	0.75	0.93	0.62	0.75	0.75	0.91	0.52	0.11
Avail Cap(c_a), veh/h	142	724	601	121	653	583	115	679	708	478	1096	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	18.2	15.6	40.6	24.2	26.4	40.8	33.3	33.3	32.0	21.0	17.8
Incr Delay (d2), s/veh	16.1	0.1	0.0	7.4	3.7	19.7	7.8	1.5	1.4	15.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	4.4	0.1	0.6	9.8	14.1	0.5	4.8	5.1	9.4	6.3	0.9
LnGrp Delay(d),s/veh	54.5	18.3	15.6	48.0	28.0	46.1	48.5	34.8	34.7	47.9	21.3	17.8
LnGrp LOS	D	B	B	D	C	D	D	C	C	D	C	B
Approach Vol, veh/h		361			979			458			751	
Approach Delay, s/veh		27.4			37.8			35.3			33.2	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	36.9	5.9	34.5	10.0	33.1	22.3	18.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.7	31.8	5.4	49.1	6.7	30.8	22.5	32.0
Max Q Clear Time (g_c+I1), s	3.1	10.5	2.8	14.2	6.2	27.6	17.7	11.7
Green Ext Time (p_c), s	0.0	0.5	0.0	0.7	0.0	1.0	0.1	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	34.5
HCM 2010 LOS	C

HCM 2010 AWSC
6: La Salle Ave & E Cotati Ave

05/15/2019

Intersection	
Intersection Delay, s/veh	88.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	658	94	42	1029	9	168	0	53	1	0	2
Future Vol, veh/h	7	658	94	42	1029	9	168	0	53	1	0	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	700	100	45	1095	10	179	0	56	1	0	2
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	35.8	139.5	21.8	12.1
HCM LOS	E	F	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	76%	100%	0%	0%	100%	0%	0%	33%
Vol Thru, %	0%	0%	100%	70%	0%	100%	97%	0%
Vol Right, %	24%	0%	0%	30%	0%	0%	3%	67%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	221	7	439	313	42	686	352	3
LT Vol	168	7	0	0	42	0	0	1
Through Vol	0	0	439	219	0	686	343	0
RT Vol	53	0	0	94	0	0	9	2
Lane Flow Rate	235	7	467	333	45	730	374	3
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.547	0.015	0.9	0.623	0.091	1.388	0.711	0.008
Departure Headway (Hd)	8.869	7.901	7.388	7.173	7.361	6.849	6.831	9.282
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	409	456	495	507	485	533	528	388
Service Time	6.569	5.601	5.088	4.873	5.137	4.625	4.606	6.982
HCM Lane V/C Ratio	0.575	0.015	0.943	0.657	0.093	1.37	0.708	0.008
HCM Control Delay	21.8	10.7	46.7	21	10.9	206.2	24.8	12.1
HCM Lane LOS	C	B	E	C	B	F	C	B
HCM 95th-tile Q	3.2	0	10.1	4.2	0.3	33.3	5.7	0

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	628	270	226	406	50	263	187	447	67	172	140
Future Volume (veh/h)	117	628	270	226	406	50	263	187	447	67	172	140
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.98	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	123	661	238	238	427	39	277	197	376	71	181	51
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	737	265	222	1079	98	262	499	415	181	310	87
Arrive On Green	0.10	0.29	0.29	0.13	0.33	0.33	0.15	0.27	0.27	0.10	0.22	0.22
Sat Flow, veh/h	1774	2532	911	1774	3269	297	1774	1863	1548	1774	1391	392
Grp Volume(v), veh/h	123	462	437	238	230	236	277	197	376	71	0	232
Grp Sat Flow(s),veh/h/ln	1774	1770	1674	1774	1770	1797	1774	1863	1548	1774	0	1783
Q Serve(g_s), s	5.9	22.0	22.0	11.0	8.8	8.9	13.0	7.6	20.7	3.3	0.0	10.2
Cycle Q Clear(g_c), s	5.9	22.0	22.0	11.0	8.8	8.9	13.0	7.6	20.7	3.3	0.0	10.2
Prop In Lane	1.00		0.54	1.00		0.17	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	173	515	487	222	584	593	262	499	415	181	0	397
V/C Ratio(X)	0.71	0.90	0.90	1.07	0.39	0.40	1.06	0.39	0.91	0.39	0.00	0.58
Avail Cap(c_a), veh/h	262	607	575	222	587	596	262	656	546	181	0	547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.5	29.9	29.9	38.5	22.7	22.7	37.5	26.4	31.1	36.9	0.0	30.6
Incr Delay (d2), s/veh	2.0	13.3	13.9	81.1	0.2	0.2	71.3	0.2	13.5	0.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	12.7	12.1	10.4	4.3	4.4	11.5	3.9	10.4	1.6	0.0	5.1
LnGrp Delay(d),s/veh	40.6	43.2	43.9	119.6	22.9	22.9	108.8	26.5	44.7	37.4	0.0	31.1
LnGrp LOS	D	D	D	F	C	C	F	C	D	D		C
Approach Vol, veh/h		1022			704			850			303	
Approach Delay, s/veh		43.2			55.6			61.4			32.6	
Approach LOS		D			E			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	30.5	17.0	24.5	12.6	33.9	13.0	28.5
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	11.0	30.2	13.0	27.0	13.0	29.2	9.0	31.0
Max Q Clear Time (g_c+I1), s	13.0	24.0	15.0	12.2	7.9	10.9	5.3	22.7
Green Ext Time (p_c), s	0.0	1.3	0.0	0.4	0.0	0.9	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	50.5
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	525	562	41	10	182	245	84	202	23	342	178	386
Future Volume (veh/h)	525	562	41	10	182	245	84	202	23	342	178	386
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	3	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.94	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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	553	592	30	11	192	192	88	213	12	360	187	280
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	549	1526	826	42	515	546	187	517	29	360	465	878
Arrive On Green	0.31	0.43	0.43	0.02	0.15	0.15	0.11	0.15	0.15	0.20	0.25	0.25
Sat Flow, veh/h	1774	3539	1528	1774	3539	1546	1774	3396	190	1774	1863	1555
Grp Volume(v), veh/h	553	592	30	11	192	192	88	110	115	360	187	280
Grp Sat Flow(s),veh/h/ln	1774	1770	1528	1774	1770	1546	1774	1770	1816	1774	1863	1555
Q Serve(g_s), s	29.0	10.7	0.9	0.6	4.6	8.7	4.4	5.3	5.4	19.0	7.8	9.1
Cycle Q Clear(g_c), s	29.0	10.7	0.9	0.6	4.6	8.7	4.4	5.3	5.4	19.0	7.8	9.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	549	1526	826	42	515	546	187	269	276	360	465	878
V/C Ratio(X)	1.01	0.39	0.04	0.26	0.37	0.35	0.47	0.41	0.42	1.00	0.40	0.32
Avail Cap(c_a), veh/h	549	2085	1068	170	1330	902	246	548	562	360	696	1071
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	18.2	10.3	44.9	36.2	22.7	39.4	35.9	35.9	37.3	29.3	11.1
Incr Delay (d2), s/veh	40.1	0.1	0.0	1.2	0.2	0.1	0.7	0.4	0.4	47.6	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.2	5.2	0.4	0.3	2.3	3.7	2.2	2.6	2.7	17.0	4.1	3.9
LnGrp Delay(d),s/veh	72.5	18.3	10.3	46.1	36.3	22.9	40.1	36.3	36.3	115.0	29.5	11.2
LnGrp LOS	F	B	B	D	D	C	D	D	D	F	C	B
Approach Vol, veh/h		1175			395			313			827	
Approach Delay, s/veh		43.6			30.1			37.4			60.5	
Approach LOS		D			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.2	45.3	13.9	28.3	33.0	18.5	23.0	19.2
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	12.0	55.2	13.0	35.0	29.0	35.2	19.0	29.0
Max Q Clear Time (g_c+I1), s	12.6	12.7	6.4	11.1	31.0	10.7	21.0	7.4
Green Ext Time (p_c), s	0.0	1.5	0.0	0.5	0.0	0.5	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	46.1
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	675	53	97	355	13	200	53	218	11	11	32
Future Volume (veh/h)	155	675	53	97	355	13	200	53	218	11	11	32
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	178	776	39	111	408	7	230	61	108	13	13	13
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	1344	68	239	1416	24	442	470	390	246	220	599
Arrive On Green	0.13	0.39	0.39	0.13	0.40	0.40	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1774	3427	172	1774	3561	61	1362	1863	1546	641	871	1563
Grp Volume(v), veh/h	178	401	414	111	203	212	230	61	108	26	0	13
Grp Sat Flow(s),veh/h/ln	1774	1770	1829	1774	1770	1852	1362	1863	1546	1512	0	1563
Q Serve(g_s), s	6.2	11.4	11.4	3.7	5.0	5.0	9.8	1.6	3.6	0.0	0.0	0.3
Cycle Q Clear(g_c), s	6.2	11.4	11.4	3.7	5.0	5.0	10.5	1.6	3.6	0.7	0.0	0.3
Prop In Lane	1.00		0.09	1.00		0.03	1.00		1.00	0.50		1.00
Lane Grp Cap(c), veh/h	229	694	717	239	704	736	442	470	390	466	0	599
V/C Ratio(X)	0.78	0.58	0.58	0.46	0.29	0.29	0.52	0.13	0.28	0.06	0.00	0.02
Avail Cap(c_a), veh/h	694	1387	1434	416	1111	1162	755	898	745	802	0	958
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.9	15.3	15.3	25.5	13.1	13.1	22.1	18.5	19.2	18.1	0.0	12.3
Incr Delay (d2), s/veh	5.6	1.6	1.6	1.4	0.5	0.5	2.0	0.3	0.8	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	5.8	6.0	1.9	2.5	2.6	4.0	0.9	1.6	0.4	0.0	0.1
LnGrp Delay(d),s/veh	32.5	16.9	16.8	26.9	13.6	13.6	24.1	18.7	20.0	18.2	0.0	12.3
LnGrp LOS	C	B	B	C	B	B	C	B	C	B		B
Approach Vol, veh/h		993			526			399			39	
Approach Delay, s/veh		19.7			16.4			22.2			16.3	
Approach LOS		B			B			C			B	

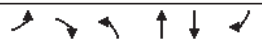
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.6	30.0		21.3	12.3	30.3		21.3
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		* 5.2
Max Green Setting (Gmax), s	15.0	50.1		* 31	25.0	40.1		* 31
Max Q Clear Time (g_c+I1), s	7.7	13.4		2.7	8.2	7.0		12.5
Green Ext Time (p_c), s	0.2	11.7		0.3	0.4	5.0		2.9

Intersection Summary	
HCM 2010 Ctrl Delay	19.2
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

05/15/2019



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	423	223	455	818	553	268
Future Volume (veh/h)	423	223	455	818	553	268
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1976	1863	1863	1863	1863
Adj Flow Rate, veh/h	460	138	495	889	601	230
Adj No. of Lanes	0	0	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	426	128	452	1126	584	497
Arrive On Green	0.31	0.31	0.25	0.60	0.31	0.31
Sat Flow, veh/h	1379	414	1774	1863	1863	1583
Grp Volume(v), veh/h	599	0	495	889	601	230
Grp Sat Flow(s),veh/h/ln	1795	0	1774	1863	1863	1583
Q Serve(g_s), s	34.0	0.0	28.0	39.7	34.5	12.8
Cycle Q Clear(g_c), s	34.0	0.0	28.0	39.7	34.5	12.8
Prop In Lane	0.77	0.23	1.00			1.00
Lane Grp Cap(c), veh/h	555	0	452	1126	584	497
V/C Ratio(X)	1.08	0.00	1.10	0.79	1.03	0.46
Avail Cap(c_a), veh/h	555	0	452	1126	584	497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	41.0	16.5	37.8	30.3
Incr Delay (d2), s/veh	61.4	0.0	71.0	3.5	44.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.3	0.0	22.6	21.4	25.0	5.7
LnGrp Delay(d),s/veh	99.4	0.0	112.0	20.0	82.5	30.6
LnGrp LOS	F		F	B	F	C
Approach Vol, veh/h	599			1384	831	
Approach Delay, s/veh	99.4			52.9	68.1	
Approach LOS	F			D	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		72.0		38.0	32.0	40.0		
Change Period (Y+Rc), s		5.5		4.0	4.0	5.5		
Max Green Setting (Gmax), s		66.5		34.0	28.0	34.5		
Max Q Clear Time (g_c+I1), s		41.7		36.0	30.0	36.5		
Green Ext Time (p_c), s		1.8		0.0	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	67.3
HCM 2010 LOS	E

Notes

HCM 2010 AWSC
12: Camino Colegio & Mitchell Dr 05/15/2019

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	389	167	24	63	13
Future Vol, veh/h	9	389	167	24	63	13
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	10	447	192	28	72	15
Number of Lanes	1	2	2	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	3
HCM Control Delay	8.4	9.4	10
HCM LOS	A	A	A

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	83%
Vol Thru, %	0%	100%	100%	100%	70%	0%
Vol Right, %	0%	0%	0%	0%	30%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	195	195	111	80	76
LT Vol	9	0	0	0	0	63
Through Vol	0	195	195	111	56	0
RT Vol	0	0	0	0	24	13
Lane Flow Rate	10	224	224	128	92	87
Geometry Grp	7	7	7	8	8	7
Degree of Util (X)	0.016	0.312	0.204	0.198	0.135	0.149
Departure Headway (Hd)	5.493	5.025	3.282	5.56	5.314	6.141
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	652	715	1091	644	672	582
Service Time	3.223	2.754	1.011	3.313	3.067	3.903
HCM Lane V/C Ratio	0.015	0.313	0.205	0.199	0.137	0.149
HCM Control Delay	8.3	10	6.9	9.7	8.9	10
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0	1.3	0.8	0.7	0.5	0.5

HCM 2010 TWSC
13: Camino Colegio & Manchester Ave 05/15/2019

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	176	255	73	105	6	53	5	28	24	19	33
Future Vol, veh/h	21	176	255	73	105	6	53	5	28	24	19	33
Conflicting Peds, #/hr	0	0	53	0	0	6	0	0	24	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	60	-	60	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	24	202	293	84	121	7	61	6	32	28	22	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	134	0	0	548	0	0	693	752	325	475	895	73
Stage 1	-	-	-	-	-	-	450	450	-	299	299	-
Stage 2	-	-	-	-	-	-	243	302	-	176	596	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	1456	-	-	1025	-	-	332	340	674	475	280	977
Stage 1	-	-	-	-	-	-	561	573	-	688	667	-
Stage 2	-	-	-	-	-	-	742	665	-	812	493	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1448	-	-	973	-	-	259	288	625	398	237	969
Mov Cap-2 Maneuver	-	-	-	-	-	-	259	288	-	398	237	-
Stage 1	-	-	-	-	-	-	524	535	-	673	606	-
Stage 2	-	-	-	-	-	-	626	604	-	732	460	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	3.6	18.9	15.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	259	288	625	1448	-	-	973	-	-	435
HCM Lane V/C Ratio	0.235	0.02	0.051	0.017	-	-	0.086	-	-	0.201
HCM Control Delay (s)	23.1	17.8	11.1	7.5	-	-	9	-	-	15.3
HCM Lane LOS	C	C	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.9	0.1	0.2	0.1	-	-	0.3	-	-	0.7

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	218	165	7	29	10
Future Vol, veh/h	10	218	165	7	29	10
Conflicting Peds, #/hr	0	0	0	3	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	110	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	2	2	2	1	1
Mvmt Flow	11	237	179	8	32	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	190	0	-	0	327	97
Stage 1	-	-	-	-	186	-
Stage 2	-	-	-	-	141	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	1389	-	-	-	645	943
Stage 1	-	-	-	-	830	-
Stage 2	-	-	-	-	874	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1385	-	-	-	636	940
Mov Cap-2 Maneuver	-	-	-	-	636	-
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	871	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1385	-	-	-	694
HCM Lane V/C Ratio	0.008	-	-	-	0.061
HCM Control Delay (s)	7.6	-	-	-	10.5
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	209	108	107	150	55
Future Vol, veh/h	35	209	108	107	150	55
Conflicting Peds, #/hr	0	4	0	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	140	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	230	119	118	165	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	558	206	232	0	-	0
Stage 1	202	-	-	-	-	-
Stage 2	356	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	491	835	1336	-	-	-
Stage 1	832	-	-	-	-	-
Stage 2	709	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	440	826	1327	-	-	-
Mov Cap-2 Maneuver	440	-	-	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	704	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1327	-	440	826	-	-
HCM Lane V/C Ratio	0.089	-	0.087	0.278	-	-
HCM Control Delay (s)	8	-	14	11	-	-
HCM Lane LOS	A	-	B	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	1.1	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	51	158	5	0	354
Future Vol, veh/h	0	51	158	5	0	354
Conflicting Peds, #/hr	0	0	0	2	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	59	182	6	0	407

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	187	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	860	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	858	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	858	-
HCM Lane V/C Ratio	-	-	0.068	-
HCM Control Delay (s)	-	-	9.5	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	51	109	10	19	346
Future Vol, veh/h	17	51	109	10	19	346
Conflicting Peds, #/hr	0	0	0	2	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	140	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	20	59	125	11	22	398

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	575	133	0	0	138	0
Stage 1	133	-	-	-	-	-
Stage 2	442	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	483	922	-	-	1458	-
Stage 1	898	-	-	-	-	-
Stage 2	652	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	475	920	-	-	1455	-
Mov Cap-2 Maneuver	475	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	652	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	475	920	1455	-
HCM Lane V/C Ratio	-	-	0.041	0.064	0.015	-
HCM Control Delay (s)	-	-	12.9	9.2	7.5	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	0	-

Intersection	
Intersection Delay, s/veh	14.4
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	45	166	109	331	25
Future Vol, veh/h	3	45	166	109	331	25
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	52	191	125	380	29
Number of Lanes	0	1	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	9.8	10.4	18.2
HCM LOS	A	B	C

Lane	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	6%	0%	0%	100%	0%
Vol Thru, %	94%	100%	0%	0%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	48	166	109	331	25
LT Vol	3	0	0	331	0
Through Vol	45	166	0	0	0
RT Vol	0	0	109	0	25
Lane Flow Rate	55	191	125	380	29
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.094	0.309	0.178	0.641	0.038
Departure Headway (Hd)	6.102	5.929	5.221	6.07	4.763
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	589	611	692	597	741
Service Time	4.123	3.629	2.921	3.77	2.562
HCM Lane V/C Ratio	0.093	0.313	0.181	0.637	0.039
HCM Control Delay	9.8	11.3	9	19	7.8
HCM Lane LOS	A	B	A	C	A
HCM 95th-tile Q	0.3	1.3	0.6	4.6	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	0	343	1	0	2	300	945	4	9	844	86
Future Volume (veh/h)	123	0	343	1	0	2	300	945	4	9	844	86
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	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	135	0	133	1	0	0	330	1038	4	10	927	91
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	194	0	173	3	0	0	308	1248	5	17	948	805
Arrive On Green	0.11	0.00	0.11	0.00	0.00	0.00	0.17	0.67	0.67	0.01	0.51	0.51
Sat Flow, veh/h	1774	0	1583	1774	0	0	1774	1854	7	1774	1863	1582
Grp Volume(v), veh/h	135	0	133	1	0	0	330	0	1042	10	927	91
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	0	1774	0	1861	1774	1863	1582
Q Serve(g_s), s	6.8	0.0	7.5	0.1	0.0	0.0	16.0	0.0	38.3	0.5	44.8	2.8
Cycle Q Clear(g_c), s	6.8	0.0	7.5	0.1	0.0	0.0	16.0	0.0	38.3	0.5	44.8	2.8
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	194	0	173	3	0	0	308	0	1253	17	948	805
V/C Ratio(X)	0.70	0.00	0.77	0.34	0.00	0.00	1.07	0.00	0.83	0.57	0.98	0.11
Avail Cap(c_a), veh/h	424	0	378	116	0	0	308	0	1253	77	951	808
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	0.0	39.9	45.9	0.0	0.0	38.0	0.0	11.2	45.4	22.1	11.8
Incr Delay (d2), s/veh	1.7	0.0	2.7	44.7	0.0	0.0	71.2	0.0	4.6	10.6	23.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	3.4	0.1	0.0	0.0	13.9	0.0	21.0	0.3	29.1	1.2
LnGrp Delay(d),s/veh	41.2	0.0	42.6	90.6	0.0	0.0	109.2	0.0	15.8	56.0	45.7	11.8
LnGrp LOS	D		D	F			F		B	E	D	B
Approach Vol, veh/h		268			1			1372			1028	
Approach Delay, s/veh		41.9			90.6			38.3			42.8	
Approach LOS		D			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	67.5		14.1	20.0	52.4		5.7
Change Period (Y+Rc), s	4.0	5.5		4.0	4.0	5.5		5.5
Max Green Setting (Gmax), s	4.9	59.0		22.0	16.0	47.0		6.0
Max Q Clear Time (g_c+I1), s	2.5	40.3		9.5	18.0	46.8		2.1
Green Ext Time (p_c), s	0.0	2.3		0.5	0.0	0.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	40.4
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	36	34	9	28	33	37	284	15	34	600	43
Future Vol, veh/h	26	36	34	9	28	33	37	284	15	34	600	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	40	38	10	31	37	42	319	17	38	674	48

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1220	1194	698	1225	1210	328	722	0	0	336	0	0
Stage 1	774	774	-	412	412	-	-	-	-	-	-	-
Stage 2	446	420	-	813	798	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	157	187	440	156	183	713	880	-	-	1223	-	-
Stage 1	391	408	-	617	594	-	-	-	-	-	-	-
Stage 2	591	589	-	372	398	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	120	172	440	110	169	713	880	-	-	1223	-	-
Mov Cap-2 Maneuver	120	172	-	110	169	-	-	-	-	-	-	-
Stage 1	372	395	-	587	565	-	-	-	-	-	-	-
Stage 2	504	561	-	295	386	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	45.8	27.4	1	0.4
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	880	-	-	191	238	1223	-	-
HCM Lane V/C Ratio	0.047	-	-	0.565	0.33	0.031	-	-
HCM Control Delay (s)	9.3	-	-	45.8	27.4	8	-	-
HCM Lane LOS	A	-	-	E	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	3	1.4	0.1	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	108	85	0	0	0
Future Vol, veh/h	0	108	85	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	0	124	98	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	98	0	-	0	222	98
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	124	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1501	-	-	-	768	961
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	904	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1501	-	-	-	768	961
Mov Cap-2 Maneuver	-	-	-	-	768	-
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	904	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1501	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	119.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	93	0	13	1	1	11	13	1156	0	37	1094	66
Future Vol, veh/h	93	0	13	1	1	11	13	1156	0	37	1094	66
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	99	0	14	1	1	12	14	1230	0	39	1164	70

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2507	2500	1164	2542	2570	1230	1234	0	0	1230	0	0
Stage 1	1242	1242	-	1258	1258	-	-	-	-	-	-	-
Stage 2	1265	1258	-	1284	1312	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 19	29	237	18	26	217	565	-	-	567	-	-
Stage 1	214	247	-	209	242	-	-	-	-	-	-	-
Stage 2	208	242	-	202	228	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 16	26	237	16	24	217	565	-	-	567	-	-
Mov Cap-2 Maneuver	~ 16	26	-	16	24	-	-	-	-	-	-	-
Stage 1	209	230	-	204	236	-	-	-	-	-	-	-
Stage 2	191	236	-	177	212	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, $	2792.1	56.1	0.1	0.4
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	565	-	-	18	84	567	-	-
HCM Lane V/C Ratio	0.024	-	-	6.265	0.165	0.069	-	-
HCM Control Delay (s)	11.5	-	-	$ 2792.1	56.1	11.8	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	14.7	0.6	0.2	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	163	14	28	86	560	14	459	8	466	549	14
Future Volume (veh/h)	28	163	14	28	86	560	14	459	8	466	549	14
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		0.98	1.00		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	1976	1937	1976	1976	1937	1976	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	29	172	12	29	91	494	15	483	5	491	578	14
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	398	26	50	90	434	13	431	4	571	583	14
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.23	0.23	0.23	0.32	0.32	0.32
Sat Flow, veh/h	107	1232	80	47	280	1346	58	1854	19	1774	1811	44
Grp Volume(v), veh/h	213	0	0	614	0	0	503	0	0	491	0	592
Grp Sat Flow(s),veh/h/ln	1419	0	0	1673	0	0	1930	0	0	1774	0	1855
Q Serve(g_s), s	0.0	0.0	0.0	21.5	0.0	0.0	25.6	0.0	0.0	28.5	0.0	35.0
Cycle Q Clear(g_c), s	9.3	0.0	0.0	35.5	0.0	0.0	25.6	0.0	0.0	28.5	0.0	35.0
Prop In Lane	0.14		0.06	0.05		0.80	0.03		0.01	1.00		0.02
Lane Grp Cap(c), veh/h	495	0	0	574	0	0	449	0	0	571	0	597
V/C Ratio(X)	0.43	0.00	0.00	1.07	0.00	0.00	1.12	0.00	0.00	0.86	0.00	0.99
Avail Cap(c_a), veh/h	495	0	0	574	0	0	449	0	0	571	0	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	0.0	38.2	0.0	0.0	42.2	0.0	0.0	35.0	0.0	37.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	57.4	0.0	0.0	79.3	0.0	0.0	12.1	0.0	34.6
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	4.9	0.0	0.0	26.5	0.0	0.0	23.5	0.0	0.0	15.8	0.0	23.7
LnGrp Delay(d),s/veh	28.6	0.0	0.0	95.6	0.0	0.0	121.5	0.0	0.0	47.0	0.0	71.7
LnGrp LOS	C			F			F			D		E
Approach Vol, veh/h		213			614			503			1083	
Approach Delay, s/veh		28.6			95.6			121.5			60.5	
Approach LOS		C			F			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		30.1		40.0		39.9		40.0
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		25.6		35.5		35.4		35.5
Max Q Clear Time (g_c+I1), s		27.6		11.3		37.0		37.5
Green Ext Time (p_c), s		0.0		0.4		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	79.4
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
24: N McDowell Blvd & Old Redwood Hwy

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	841	853	121	591	19	491	68	82	8	26	74
Future Volume (veh/h)	252	841	853	121	591	19	491	68	82	8	26	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	262	876	0	126	616	16	562	0	37	8	27	31
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	246	964	739	573	1634	42	698	0	309	145	152	129
Arrive On Green	0.23	0.45	0.00	0.32	0.46	0.46	0.20	0.00	0.20	0.08	0.08	0.08
Sat Flow, veh/h	1774	3539	1583	1774	3525	91	3548	0	1569	1774	1863	1572
Grp Volume(v), veh/h	262	876	0	126	309	323	562	0	37	8	27	31
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1846	1774	0	1569	1774	1863	1572
Q Serve(g_s), s	18.0	29.9	0.0	6.7	14.8	14.8	19.7	0.0	2.5	0.5	1.8	2.4
Cycle Q Clear(g_c), s	18.0	29.9	0.0	6.7	14.8	14.8	19.7	0.0	2.5	0.5	1.8	2.4
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	964	739	573	821	856	698	0	309	145	152	129
V/C Ratio(X)	1.07	0.91	0.00	0.22	0.38	0.38	0.80	0.00	0.12	0.06	0.18	0.24
Avail Cap(c_a), veh/h	246	964	739	573	821	856	1048	0	463	420	441	372
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.64	0.64	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	33.9	0.0	32.1	22.7	22.7	49.8	0.0	42.9	55.0	55.6	55.9
Incr Delay (d2), s/veh	64.9	9.7	0.0	0.1	1.3	1.3	1.5	0.0	0.1	0.1	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.2	15.7	0.0	3.3	7.5	7.8	9.7	0.0	1.1	0.3	0.9	1.1
LnGrp Delay(d),s/veh	114.9	43.7	0.0	32.1	24.0	23.9	51.4	0.0	43.0	55.1	55.8	56.3
LnGrp LOS	F	D		C	C	C	D		D	E	E	E
Approach Vol, veh/h		1138			758			599			66	
Approach Delay, s/veh		60.1			25.3			50.8			55.9	
Approach LOS		E			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	39.3		14.5	22.0	64.3		29.2
Change Period (Y+Rc), s	5.0	* 5		* 4.7	4.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	* 34		* 30	18.0	26.3		37.0
Max Q Clear Time (g_c+I1), s	19.7	31.9		4.4	20.0	16.8		21.7
Green Ext Time (p_c), s	0.0	1.6		0.1	0.0	3.8		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	47.5
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
25: US 101 NB Off-ramp & Old Redwood Hwy

05/15/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1461	478	0	1125	434	554
Future Volume (veh/h)	1461	478	0	1125	434	554
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	1491	0	0	1148	443	447
Adj No. of Lanes	2	1	0	2	2	2
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2287	1023	0	2287	773	626
Arrive On Green	0.65	0.00	0.00	1.00	0.22	0.22
Sat Flow, veh/h	3632	1583	0	3725	3442	2787
Grp Volume(v), veh/h	1491	0	0	1148	443	447
Grp Sat Flow(s),veh/h/ln	1770	1583	0	1770	1721	1393
Q Serve(g_s), s	16.7	0.0	0.0	0.0	7.4	9.6
Cycle Q Clear(g_c), s	16.7	0.0	0.0	0.0	7.4	9.6
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2287	1023	0	2287	773	626
V/C Ratio(X)	0.65	0.00	0.00	0.50	0.57	0.71
Avail Cap(c_a), veh/h	2287	1023	0	2287	1043	845
HCM Platoon Ratio	1.00	1.00	1.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.85	1.00	1.00
Uniform Delay (d), s/veh	7.0	0.0	0.0	0.0	22.4	23.3
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.7	0.7	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	0.0	0.0	0.2	3.6	3.8
LnGrp Delay(d),s/veh	8.5	0.0	0.0	0.7	23.1	25.1
LnGrp LOS	A			A	C	C
Approach Vol, veh/h	1491			1148	890	
Approach Delay, s/veh	8.5			0.7	24.1	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		46.0				46.0		19.0
Change Period (Y+Rc), s		5.1				5.1		5.1
Max Green Setting (Gmax), s		35.8				35.8		19.0
Max Q Clear Time (g_c+I1), s		18.7				2.0		11.6
Green Ext Time (p_c), s		12.3				14.3		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	9.9
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1: Snyder Ln & Rohnert Park Expwy

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	338	451	316	74	404	185	288	441	89	211	494	302
Future Volume (veh/h)	338	451	316	74	404	185	288	441	89	211	494	302
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		0.98	1.00		0.99	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	389	518	349	85	464	208	331	507	99	243	568	333
Adj No. of Lanes	2	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	456	807	571	199	736	523	468	1165	678	431	1128	697
Arrive On Green	0.13	0.23	0.23	0.11	0.21	0.21	0.14	0.33	0.33	0.13	0.32	0.32
Sat Flow, veh/h	3442	3539	1559	1774	3539	1560	3442	3539	1519	3442	3539	1528
Grp Volume(v), veh/h	389	518	349	85	464	208	331	507	99	243	568	333
Grp Sat Flow(s),veh/h/ln	1721	1770	1559	1774	1770	1560	1721	1770	1519	1721	1770	1528
Q Serve(g_s), s	10.6	12.7	17.5	4.3	11.4	9.8	8.8	10.7	3.7	6.4	12.5	14.6
Cycle Q Clear(g_c), s	10.6	12.7	17.5	4.3	11.4	9.8	8.8	10.7	3.7	6.4	12.5	14.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	456	807	571	199	736	523	468	1165	678	431	1128	697
V/C Ratio(X)	0.85	0.64	0.61	0.43	0.63	0.40	0.71	0.44	0.15	0.56	0.50	0.48
Avail Cap(c_a), veh/h	540	1677	954	278	1674	936	540	1674	896	540	1674	932
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	33.4	24.9	39.5	34.5	24.5	39.5	25.1	15.9	39.3	26.4	18.4
Incr Delay (d2), s/veh	9.7	0.3	0.4	0.5	0.3	0.2	2.6	0.1	0.0	0.4	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	6.2	7.6	2.1	5.6	4.2	4.4	5.2	1.6	3.0	6.1	6.2
LnGrp Delay(d),s/veh	50.2	33.7	25.3	40.1	34.8	24.7	42.1	25.2	16.0	39.8	26.6	18.6
LnGrp LOS	D	C	C	D	C	C	D	C	B	D	C	B
Approach Vol, veh/h		1256			757			937			1144	
Approach Delay, s/veh		36.5			32.6			30.2			27.0	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	37.3	14.7	27.6	17.0	36.2	16.7	25.7
Change Period (Y+Rc), s	4.0	5.8	4.0	* 5.8	4.0	5.8	4.0	* 5.8
Max Green Setting (Gmax), s	15.0	45.2	15.0	* 45	15.0	45.2	15.0	* 45
Max Q Clear Time (g_c+I1), s	8.4	12.7	6.3	19.5	10.8	16.6	12.6	13.4
Green Ext Time (p_c), s	0.1	1.2	0.0	1.3	0.1	1.4	0.1	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	31.7
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
2: US 101 SB Ramps & Gravenstein Hwy

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	616	314	313	959	0	0	0	0	458	0	308
Future Volume (veh/h)	0	616	314	313	959	0	0	0	0	458	0	308
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	0	1863	1937	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	642	233	326	999	0				477	0	214
Adj No. of Lanes	0	2	1	1	2	0				2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1142	523	671	2626	0				606	0	274
Arrive On Green	0.00	0.32	0.32	0.76	1.00	0.00				0.18	0.00	0.18
Sat Flow, veh/h	0	3632	1622	1774	3632	0				3442	0	1555
Grp Volume(v), veh/h	0	642	233	326	999	0				477	0	214
Grp Sat Flow(s),veh/h/ln	0	1770	1622	1774	1770	0				1721	0	1555
Q Serve(g_s), s	0.0	16.5	12.5	7.8	0.0	0.0				14.6	0.0	14.5
Cycle Q Clear(g_c), s	0.0	16.5	12.5	7.8	0.0	0.0				14.6	0.0	14.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1142	523	671	2626	0				606	0	274
V/C Ratio(X)	0.00	0.56	0.45	0.49	0.38	0.00				0.79	0.00	0.78
Avail Cap(c_a), veh/h	0	1142	523	671	2626	0				829	0	375
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.80	0.80	0.93	0.93	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	30.8	29.5	9.3	0.0	0.0				43.3	0.0	43.3
Incr Delay (d2), s/veh	0.0	1.6	2.2	0.2	0.4	0.0				2.3	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.3	5.9	3.7	0.1	0.0				7.2	0.0	6.6
LnGrp Delay(d),s/veh	0.0	32.4	31.7	9.5	0.4	0.0				45.7	0.0	48.0
LnGrp LOS		C	C	A	A					D		D
Approach Vol, veh/h		875			1325						691	
Approach Delay, s/veh		32.2			2.6						46.4	
Approach LOS		C			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	16.1	40.0		23.9		86.1		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	14.5	35.5		26.5		74.5		
Max Q Clear Time (g_c+I1), s	9.8	18.5		16.6		2.0		
Green Ext Time (p_c), s	0.3	4.8		2.8		7.6		

Intersection Summary	
HCM 2010 Ctrl Delay	22.0
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
3: US 101 NB Off-ramp & Gravenstein Hwy

07/30/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1073	0	0	877	408	125
Future Volume (veh/h)	1073	0	0	877	408	125
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863
Adj Flow Rate, veh/h	1118	0	0	914	425	105
Adj No. of Lanes	2	0	0	3	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	2614	0	0	3756	618	284
Arrive On Green	0.49	0.00	0.00	0.74	0.18	0.18
Sat Flow, veh/h	3725	0	0	5421	3442	1583
Grp Volume(v), veh/h	1118	0	0	914	425	105
Grp Sat Flow(s),veh/h/ln	1770	0	0	1695	1721	1583
Q Serve(g_s), s	22.3	0.0	0.0	6.3	12.7	6.4
Cycle Q Clear(g_c), s	22.3	0.0	0.0	6.3	12.7	6.4
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2614	0	0	3756	618	284
V/C Ratio(X)	0.43	0.00	0.00	0.24	0.69	0.37
Avail Cap(c_a), veh/h	2614	0	0	3756	1173	540
HCM Platoon Ratio	0.67	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.00	0.00	0.62	1.00	1.00
Uniform Delay (d), s/veh	12.9	0.0	0.0	4.6	42.2	39.6
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.1	1.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	2.9	6.1	2.9
LnGrp Delay(d),s/veh	13.3	0.0	0.0	4.7	43.6	40.4
LnGrp LOS	B			A	D	D
Approach Vol, veh/h	1118			914	530	
Approach Delay, s/veh	13.3			4.7	43.0	
Approach LOS	B			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		85.7				85.7		24.3
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		63.5				63.5		37.5
Max Q Clear Time (g_c+I1), s		24.3				8.3		14.7
Green Ext Time (p_c), s		17.6				14.3		5.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Old Redwood Hwy & Gravenstein Hwy/Gravenstein Way

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	551	75	574	58	105	68	317	763	28	25	117	449
Future Volume (veh/h)	551	75	574	58	105	68	317	763	28	25	117	449
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	568	77	0	60	108	59	327	787	20	26	121	447
Adj No. of Lanes	2	1	1	1	1	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	729	395	335	210	133	73	399	813	21	431	453	720
Arrive On Green	0.21	0.21	0.00	0.12	0.12	0.12	0.22	0.22	0.22	0.24	0.24	0.24
Sat Flow, veh/h	3442	1863	1583	1774	1128	616	1774	3614	92	1774	1863	1583
Grp Volume(v), veh/h	568	77	0	60	0	167	327	406	401	26	121	447
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	0	1744	1774	1863	1843	1774	1863	1583
Q Serve(g_s), s	13.5	2.9	0.0	2.7	0.0	8.1	15.2	18.7	18.7	1.0	4.6	18.6
Cycle Q Clear(g_c), s	13.5	2.9	0.0	2.7	0.0	8.1	15.2	18.7	18.7	1.0	4.6	18.6
Prop In Lane	1.00		1.00	1.00		0.35	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	729	395	335	210	0	206	399	419	414	431	453	720
V/C Ratio(X)	0.78	0.20	0.00	0.29	0.00	0.81	0.82	0.97	0.97	0.06	0.27	0.62
Avail Cap(c_a), veh/h	953	516	438	491	0	483	399	419	414	512	537	792
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	28.1	0.0	34.9	0.0	37.3	31.9	33.3	33.3	25.2	26.6	17.9
Incr Delay (d2), s/veh	2.2	0.1	0.0	0.3	0.0	2.9	11.9	35.4	35.7	0.0	0.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	1.5	0.0	1.3	0.0	4.1	8.8	13.7	13.6	0.5	2.4	10.7
LnGrp Delay(d),s/veh	34.4	28.2	0.0	35.2	0.0	40.2	43.9	68.7	69.0	25.2	26.7	18.7
LnGrp LOS	C	C		D		D	D	E	E	C	C	B
Approach Vol, veh/h		645			227			1134			594	
Approach Delay, s/veh		33.7			38.8			61.6			20.6	
Approach LOS		C			D			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		22.9		25.6		14.2		24.0
Change Period (Y+Rc), s		4.5		4.5		4.0		4.5
Max Green Setting (Gmax), s		24.0		25.0		24.0		19.5
Max Q Clear Time (g_c+I1), s		15.5		20.6		10.1		20.7
Green Ext Time (p_c), s		2.4		0.5		0.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	43.4
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave 07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	263	6	22	449	604	17	413	11	356	333	63
Future Volume (veh/h)	87	263	6	22	449	604	17	413	11	356	333	63
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	91	274	4	23	468	582	18	430	10	371	347	61
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	729	606	35	611	545	29	566	13	403	692	579
Arrive On Green	0.07	0.39	0.39	0.02	0.35	0.35	0.02	0.16	0.16	0.23	0.37	0.37
Sat Flow, veh/h	1774	1863	1548	1774	1770	1579	1774	3533	82	1774	1863	1560
Grp Volume(v), veh/h	91	274	4	23	468	582	18	215	225	371	347	61
Grp Sat Flow(s),veh/h/ln	1774	1863	1548	1774	1770	1579	1774	1770	1846	1774	1863	1560
Q Serve(g_s), s	4.5	9.4	0.1	1.1	21.0	30.8	0.9	10.4	10.4	18.2	12.8	2.3
Cycle Q Clear(g_c), s	4.5	9.4	0.1	1.1	21.0	30.8	0.9	10.4	10.4	18.2	12.8	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	116	729	606	35	611	545	29	283	295	403	692	579
V/C Ratio(X)	0.79	0.38	0.01	0.67	0.77	1.07	0.63	0.76	0.76	0.92	0.50	0.11
Avail Cap(c_a), veh/h	133	729	606	113	611	545	107	635	662	448	1026	859
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	19.4	16.6	43.4	26.0	29.2	43.6	35.8	35.8	33.7	21.7	18.3
Incr Delay (d2), s/veh	19.7	0.1	0.0	7.9	5.2	57.7	8.1	1.6	1.5	21.8	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	4.8	0.1	0.6	11.2	22.1	0.5	5.2	5.4	11.3	6.6	1.0
LnGrp Delay(d),s/veh	60.7	19.5	16.6	51.3	31.2	86.8	51.7	37.4	37.4	55.5	21.9	18.4
LnGrp LOS	E	B	B	D	C	F	D	D	D	E	C	B
Approach Vol, veh/h		369			1073			458			779	
Approach Delay, s/veh		29.6			61.8			37.9			37.6	
Approach LOS		C			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	39.4	5.9	37.6	10.3	35.3	24.8	18.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.7	31.8	5.4	49.1	6.7	30.8	22.5	32.0
Max Q Clear Time (g_c+I1), s	3.1	11.4	2.9	14.8	6.5	32.8	20.2	12.4
Green Ext Time (p_c), s	0.0	0.5	0.0	0.7	0.0	0.0	0.1	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	46.3
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave 07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	263	6	22	449	604	17	413	11	356	333	63
Future Volume (veh/h)	87	263	6	22	449	604	17	413	11	356	333	63
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	91	274	4	23	468	582	18	430	10	371	347	61
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	662	550	36	577	854	29	582	14	409	705	585
Arrive On Green	0.07	0.36	0.36	0.02	0.31	0.31	0.02	0.16	0.16	0.23	0.38	0.38
Sat Flow, veh/h	1774	1863	1548	1774	1863	1579	1774	3533	82	1774	1863	1544
Grp Volume(v), veh/h	91	274	4	23	468	582	18	215	225	371	347	61
Grp Sat Flow(s),veh/h/ln	1774	1863	1548	1774	1863	1579	1774	1770	1846	1774	1863	1544
Q Serve(g_s), s	4.0	8.7	0.1	1.0	18.2	21.1	0.8	9.1	9.1	16.0	11.2	2.0
Cycle Q Clear(g_c), s	4.0	8.7	0.1	1.0	18.2	21.1	0.8	9.1	9.1	16.0	11.2	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	116	662	550	36	577	854	29	292	304	409	705	585
V/C Ratio(X)	0.78	0.41	0.01	0.64	0.81	0.68	0.61	0.74	0.74	0.91	0.49	0.10
Avail Cap(c_a), veh/h	152	717	596	129	694	953	122	722	753	545	1204	998
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	19.1	16.3	38.1	25.0	13.1	38.3	31.1	31.1	29.4	18.6	15.8
Incr Delay (d2), s/veh	13.0	0.2	0.0	7.0	5.1	1.3	7.5	1.4	1.3	13.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.5	0.1	0.6	10.2	9.4	0.4	4.5	4.7	9.4	5.7	0.8
LnGrp Delay(d),s/veh	49.1	19.3	16.3	45.2	30.0	14.4	45.8	32.5	32.5	42.9	18.8	15.8
LnGrp LOS	D	B	B	D	C	B	D	C	C	D	B	B
Approach Vol, veh/h		369			1073			458			779	
Approach Delay, s/veh		26.6			21.9			33.0			30.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.1	32.3	5.8	34.2	9.6	28.8	22.6	17.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.7	30.2	5.4	50.7	6.7	29.2	24.1	32.0
Max Q Clear Time (g_c+I1), s	3.0	10.7	2.8	13.2	6.0	23.1	18.0	11.1
Green Ext Time (p_c), s	0.0	0.5	0.0	0.7	0.0	1.0	0.1	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	26.8
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	263	6	22	449	604	17	413	11	356	333	63
Future Volume (veh/h)	87	263	6	22	449	604	17	413	11	356	333	63
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	91	274	4	23	468	582	18	430	10	371	347	61
Adj No. of Lanes	1	1	1	0	1	1	1	2	0	2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	905	752	71	632	773	30	608	14	474	450	79
Arrive On Green	0.07	0.49	0.49	0.35	0.35	0.35	0.02	0.17	0.17	0.14	0.29	0.29
Sat Flow, veh/h	1774	1863	1549	39	1796	1579	1774	3534	82	3442	1536	270
Grp Volume(v), veh/h	91	274	4	491	0	582	18	215	225	371	0	408
Grp Sat Flow(s),veh/h/ln	1774	1863	1549	1835	0	1579	1774	1770	1847	1721	0	1807
Q Serve(g_s), s	3.3	5.9	0.1	3.0	0.0	19.6	0.7	7.6	7.6	6.9	0.0	13.6
Cycle Q Clear(g_c), s	3.3	5.9	0.1	15.4	0.0	19.6	0.7	7.6	7.6	6.9	0.0	13.6
Prop In Lane	1.00		1.00	0.05		1.00	1.00		0.04	1.00		0.15
Lane Grp Cap(c), veh/h	116	905	752	703	0	773	30	304	318	474	0	529
V/C Ratio(X)	0.78	0.30	0.01	0.70	0.00	0.75	0.60	0.71	0.71	0.78	0.00	0.77
Avail Cap(c_a), veh/h	180	1271	1057	993	0	1027	148	859	896	1018	0	1260
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.3	10.2	8.7	18.8	0.0	13.6	32.2	25.7	25.7	27.5	0.0	21.3
Incr Delay (d2), s/veh	4.7	0.1	0.0	0.5	0.0	1.4	6.8	1.1	1.1	1.1	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	3.0	0.0	7.9	0.0	8.8	0.4	3.8	4.0	3.3	0.0	6.9
LnGrp Delay(d),s/veh	35.0	10.3	8.7	19.3	0.0	15.0	38.9	26.9	26.8	28.6	0.0	22.2
LnGrp LOS	D	B	A	B		B	D	C	C	C		C
Approach Vol, veh/h		369			1073			458			779	
Approach Delay, s/veh		16.4			17.0			27.3			25.2	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		36.5	5.6	23.8	8.8	27.7	13.6	15.8
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s		45.0	5.5	46.0	6.7	33.8	19.5	32.0
Max Q Clear Time (g_c+I1), s		7.9	2.7	15.6	5.3	21.6	8.9	9.6
Green Ext Time (p_c), s		0.6	0.0	0.8	0.0	1.3	0.2	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	21.1
HCM 2010 LOS	C

HCM 2010 AWSC
6: La Salle Ave & E Cotati Ave

07/30/2019

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	693	94	42	1119	9	168	0	53	1	0	2
Future Vol, veh/h	7	693	94	42	1119	9	168	0	53	1	0	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	737	100	45	1190	10	179	0	56	1	0	2
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	43.2	179.7	22.6	12.3
HCM LOS	E	F	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	76%	100%	0%	0%	100%	0%	0%	33%
Vol Thru, %	0%	0%	100%	71%	0%	100%	98%	0%
Vol Right, %	24%	0%	0%	29%	0%	0%	2%	67%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	221	7	462	325	42	746	382	3
LT Vol	168	7	0	0	42	0	0	1
Through Vol	0	0	462	231	0	746	373	0
RT Vol	53	0	0	94	0	0	9	2
Lane Flow Rate	235	7	491	346	45	794	406	3
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.555	0.016	0.956	0.653	0.092	1.527	0.78	0.008
Departure Headway (Hd)	9.116	8.053	7.54	7.332	7.438	6.926	6.909	9.482
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	397	447	487	498	479	524	520	380
Service Time	6.816	5.753	5.24	5.032	5.218	4.705	4.688	7.182
HCM Lane V/C Ratio	0.592	0.016	1.008	0.695	0.094	1.515	0.781	0.008
HCM Control Delay	22.6	10.9	58.1	22.8	11	265.7	30.2	12.3
HCM Lane LOS	C	B	F	C	B	F	D	B
HCM 95th-tile Q	3.3	0	11.8	4.6	0.3	41	7.1	0

HCM 2010 Signalized Intersection Summary
6: La Salle Ave & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	693	94	42	1119	9	168	0	53	1	0	2
Future Volume (veh/h)	7	693	94	42	1119	9	168	0	53	1	0	2
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1976	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	7	737	100	45	1190	10	179	0	56	1	0	2
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	346	1427	193	447	1644	14	464	7	76	236	57	242
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.22	0.00	0.22	0.22	0.00	0.22
Sat Flow, veh/h	464	3120	423	653	3596	30	1076	30	346	291	257	1097
Grp Volume(v), veh/h	7	418	419	45	586	614	235	0	0	3	0	0
Grp Sat Flow(s),veh/h/ln	464	1770	1774	653	1770	1856	1451	0	0	1646	0	0
Q Serve(g_s), s	0.3	4.7	4.7	1.5	7.5	7.5	4.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.8	4.7	4.7	6.2	7.5	7.5	4.2	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.24	1.00		0.02	0.76		0.24	0.33		0.67
Lane Grp Cap(c), veh/h	346	809	811	447	809	849	547	0	0	534	0	0
V/C Ratio(X)	0.02	0.52	0.52	0.10	0.72	0.72	0.43	0.00	0.00	0.01	0.00	0.00
Avail Cap(c_a), veh/h	1140	3838	3846	1564	3838	4026	1807	0	0	1836	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.3	5.4	5.4	7.6	6.1	6.1	10.1	0.0	0.0	8.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.5	0.4	0.2	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	2.2	2.3	0.3	3.7	3.9	1.7	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	9.3	5.6	5.6	7.6	6.6	6.6	10.3	0.0	0.0	8.5	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B			A		
Approach Vol, veh/h		844			1245			235			3	
Approach Delay, s/veh		5.6			6.6			10.3			8.5	
Approach LOS		A			A			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		17.3		10.6		17.3		10.6
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		60.5		30.5		60.5		30.5
Max Q Clear Time (g_c+I1), s		9.8		2.0		9.5		6.2
Green Ext Time (p_c), s		2.0		0.0		2.9		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	6.6
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	628	323	253	406	50	374	193	486	67	178	140
Future Volume (veh/h)	117	628	323	253	406	50	374	193	486	67	178	140
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.96	1.00		0.98	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	123	661	294	266	427	39	394	203	417	71	187	51
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	162	712	317	207	1101	100	244	535	445	169	344	94
Arrive On Green	0.09	0.30	0.30	0.12	0.34	0.34	0.14	0.29	0.29	0.10	0.25	0.25
Sat Flow, veh/h	1774	2364	1051	1774	3269	297	1774	1863	1549	1774	1403	383
Grp Volume(v), veh/h	123	495	460	266	230	236	394	203	417	71	0	238
Grp Sat Flow(s),veh/h/ln	1774	1770	1646	1774	1770	1797	1774	1863	1549	1774	0	1785
Q Serve(g_s), s	6.4	25.6	25.6	11.0	9.4	9.5	13.0	8.2	24.8	3.6	0.0	11.0
Cycle Q Clear(g_c), s	6.4	25.6	25.6	11.0	9.4	9.5	13.0	8.2	24.8	3.6	0.0	11.0
Prop In Lane	1.00		0.64	1.00		0.17	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	162	533	496	207	596	605	244	535	445	169	0	437
V/C Ratio(X)	0.76	0.93	0.93	1.29	0.39	0.39	1.61	0.38	0.94	0.42	0.00	0.54
Avail Cap(c_a), veh/h	244	566	527	207	596	605	244	612	509	169	0	511
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.8	32.0	32.0	41.7	23.8	23.9	40.7	26.9	32.8	40.2	0.0	31.0
Incr Delay (d2), s/veh	2.9	20.5	21.6	160.2	0.2	0.2	293.5	0.2	22.3	0.6	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	15.5	14.6	14.5	4.6	4.7	26.2	4.3	13.3	1.8	0.0	5.5
LnGrp Delay(d),s/veh	44.7	52.5	53.6	201.8	24.0	24.0	334.2	27.0	55.0	40.8	0.0	31.4
LnGrp LOS	D	D	D	F	C	C	F	C	E	D		C
Approach Vol, veh/h		1078			732			1014			309	
Approach Delay, s/veh		52.0			88.6			157.9			33.6	
Approach LOS		D			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	33.3	17.0	28.0	12.6	36.7	13.0	32.0
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	11.0	30.2	13.0	27.0	13.0	29.2	9.0	31.0
Max Q Clear Time (g_c+I1), s	13.0	27.6	15.0	13.0	8.4	11.5	5.6	26.8
Green Ext Time (p_c), s	0.0	0.8	0.0	0.4	0.0	0.8	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	93.0
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	628	323	253	406	50	374	193	486	67	178	140
Future Volume (veh/h)	117	628	323	253	406	50	374	193	486	67	178	140
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.96	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	123	661	294	266	427	39	394	203	417	71	187	51
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	709	315	289	1267	115	455	532	442	358	261	71
Arrive On Green	0.08	0.30	0.30	0.16	0.39	0.39	0.18	0.29	0.29	0.08	0.19	0.19
Sat Flow, veh/h	1774	2364	1051	1774	3270	297	1774	1863	1549	1774	1401	382
Grp Volume(v), veh/h	123	495	460	266	230	236	394	203	417	71	0	238
Grp Sat Flow(s),veh/h/ln	1774	1770	1646	1774	1770	1798	1774	1863	1549	1774	0	1784
Q Serve(g_s), s	7.5	30.0	30.0	16.3	10.1	10.2	19.4	9.7	29.1	3.4	0.0	13.9
Cycle Q Clear(g_c), s	7.5	30.0	30.0	16.3	10.1	10.2	19.4	9.7	29.1	3.4	0.0	13.9
Prop In Lane	1.00		0.64	1.00		0.17	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	150	531	494	289	686	696	455	532	442	358	0	332
V/C Ratio(X)	0.82	0.93	0.93	0.92	0.34	0.34	0.87	0.38	0.94	0.20	0.00	0.72
Avail Cap(c_a), veh/h	241	580	539	289	686	696	455	641	533	358	0	436
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.8	37.6	37.6	45.5	23.8	23.9	28.6	31.7	38.6	30.9	0.0	42.2
Incr Delay (d2), s/veh	5.1	20.4	21.5	32.3	0.1	0.1	15.4	0.2	21.8	0.1	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	17.7	16.6	10.6	4.9	5.1	11.4	5.0	15.1	1.6	0.0	7.0
LnGrp Delay(d),s/veh	54.9	58.0	59.1	77.9	23.9	24.0	44.0	31.8	60.4	31.0	0.0	44.5
LnGrp LOS	D	E	E	E	C	C	D	C	E	C		D
Approach Vol, veh/h		1078			732			1014			309	
Approach Delay, s/veh		58.1			43.5			48.3			41.4	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	38.1	24.0	25.4	13.3	47.7	13.0	36.4
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	18.0	36.2	20.0	27.0	15.0	40.2	9.0	38.0
Max Q Clear Time (g_c+I1), s	18.3	32.0	21.4	15.9	9.5	12.2	5.4	31.1
Green Ext Time (p_c), s	0.0	1.1	0.0	0.4	0.0	0.9	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	49.9
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	564	562	41	10	182	264	84	224	23	355	194	413
Future Volume (veh/h)	564	562	41	10	182	264	84	224	23	355	194	413
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	3	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.94	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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	594	592	30	11	192	212	88	236	12	374	204	309
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	543	1544	833	42	545	556	186	516	26	356	460	869
Arrive On Green	0.31	0.44	0.44	0.02	0.15	0.15	0.10	0.15	0.15	0.20	0.25	0.25
Sat Flow, veh/h	1774	3539	1529	1774	3539	1547	1774	3417	173	1774	1863	1555
Grp Volume(v), veh/h	594	592	30	11	192	212	88	121	127	374	204	309
Grp Sat Flow(s),veh/h/ln	1774	1770	1529	1774	1770	1547	1774	1770	1820	1774	1863	1555
Q Serve(g_s), s	29.0	10.7	0.9	0.6	4.6	9.7	4.4	5.9	6.0	19.0	8.8	10.5
Cycle Q Clear(g_c), s	29.0	10.7	0.9	0.6	4.6	9.7	4.4	5.9	6.0	19.0	8.8	10.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	543	1544	833	42	545	556	186	267	275	356	460	869
V/C Ratio(X)	1.09	0.38	0.04	0.26	0.35	0.38	0.47	0.45	0.46	1.05	0.44	0.36
Avail Cap(c_a), veh/h	543	2063	1057	169	1316	893	244	542	557	356	688	1060
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	18.1	10.2	45.4	35.8	22.8	39.9	36.6	36.7	37.8	30.1	11.8
Incr Delay (d2), s/veh	66.5	0.1	0.0	1.2	0.1	0.2	0.7	0.4	0.4	61.6	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.4	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.1	5.2	0.4	0.3	2.3	4.2	2.2	2.9	3.1	18.3	4.5	4.5
LnGrp Delay(d),s/veh	99.3	18.1	10.2	46.6	36.0	23.0	40.6	37.1	37.1	127.8	30.4	11.9
LnGrp LOS	F	B	B	D	D	C	D	D	D	F	C	B
Approach Vol, veh/h		1216			415			336			887	
Approach Delay, s/veh		57.6			29.6			38.0			65.0	
Approach LOS		E			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	46.2	13.9	28.3	33.0	19.5	23.0	19.2
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	9.0	55.2	13.0	35.0	29.0	35.2	19.0	29.0
Max Q Clear Time (g_c+I1), s	2.6	12.7	6.4	12.5	31.0	11.7	21.0	8.0
Green Ext Time (p_c), s	0.0	1.5	0.0	0.5	0.0	0.5	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	53.5
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	564	562	41	10	182	264	84	224	23	355	194	413
Future Volume (veh/h)	564	562	41	10	182	264	84	224	23	355	194	413
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	3	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.95	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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	594	592	30	11	192	212	88	236	12	374	204	309
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	622	1736	919	42	579	459	189	559	28	447	348	845
Arrive On Green	0.35	0.49	0.49	0.02	0.16	0.16	0.11	0.16	0.16	0.13	0.19	0.19
Sat Flow, veh/h	1774	3539	1531	1774	3539	1548	1774	3418	173	3442	1863	1552
Grp Volume(v), veh/h	594	592	30	11	192	212	88	121	127	374	204	309
Grp Sat Flow(s),veh/h/ln	1774	1770	1531	1774	1770	1548	1774	1770	1821	1721	1863	1552
Q Serve(g_s), s	30.2	9.5	0.7	0.6	4.4	10.4	4.3	5.7	5.8	9.8	9.3	10.6
Cycle Q Clear(g_c), s	30.2	9.5	0.7	0.6	4.4	10.4	4.3	5.7	5.8	9.8	9.3	10.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	622	1736	919	42	579	459	189	289	298	447	348	845
V/C Ratio(X)	0.95	0.34	0.03	0.26	0.33	0.46	0.47	0.42	0.42	0.84	0.59	0.37
Avail Cap(c_a), veh/h	805	2570	1281	173	1308	775	249	555	571	484	584	1042
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.3	14.4	7.7	44.3	34.2	26.8	38.9	34.8	34.8	39.5	34.4	12.3
Incr Delay (d2), s/veh	17.1	0.0	0.0	1.2	0.1	0.3	0.7	0.4	0.4	10.6	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.6	4.6	0.3	0.3	2.2	4.5	2.1	2.8	2.9	5.6	4.8	4.6
LnGrp Delay(d),s/veh	46.4	14.5	7.7	45.5	34.4	27.0	39.5	35.1	35.1	52.0	34.9	12.4
LnGrp LOS	D	B	A	D	C	C	D	D	D	D	C	B
Approach Vol, veh/h		1216			415			336			887	
Approach Delay, s/veh		29.9			30.9			36.3			34.3	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.2	50.3	13.9	22.2	36.5	20.0	15.9	20.1
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	9.6	67.2	13.0	29.0	42.0	34.2	13.0	29.0
Max Q Clear Time (g_c+I1), s	12.6	11.5	6.3	12.6	32.2	12.4	11.8	7.8
Green Ext Time (p_c), s	0.0	1.5	0.0	0.5	0.2	0.5	0.1	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	32.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	675	66	123	355	13	219	53	265	11	11	32
Future Volume (veh/h)	155	675	66	123	355	13	219	53	265	11	11	32
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	178	776	54	141	408	7	252	61	162	13	13	13
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	227	1302	91	243	1413	24	456	498	414	248	224	621
Arrive On Green	0.13	0.39	0.39	0.14	0.40	0.40	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	3354	233	1774	3561	61	1363	1863	1547	632	837	1564
Grp Volume(v), veh/h	178	409	421	141	203	212	252	61	162	26	0	13
Grp Sat Flow(s),veh/h/ln	1774	1770	1818	1774	1770	1852	1363	1863	1547	1468	0	1564
Q Serve(g_s), s	6.6	12.5	12.5	5.1	5.3	5.3	11.4	1.7	5.8	0.0	0.0	0.3
Cycle Q Clear(g_c), s	6.6	12.5	12.5	5.1	5.3	5.3	12.2	1.7	5.8	0.7	0.0	0.3
Prop In Lane	1.00		0.13	1.00		0.03	1.00		1.00	0.50		1.00
Lane Grp Cap(c), veh/h	227	687	706	243	702	735	456	498	414	472	0	621
V/C Ratio(X)	0.78	0.60	0.60	0.58	0.29	0.29	0.55	0.12	0.39	0.06	0.00	0.02
Avail Cap(c_a), veh/h	653	1305	1341	392	1045	1093	710	845	701	736	0	912
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.7	16.5	16.5	27.5	13.9	13.9	23.0	18.8	20.4	18.5	0.0	12.5
Incr Delay (d2), s/veh	5.8	1.8	1.7	2.2	0.5	0.5	2.2	0.2	1.3	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	6.4	6.5	2.6	2.7	2.8	4.6	0.9	2.6	0.4	0.0	0.2
LnGrp Delay(d),s/veh	34.5	18.3	18.3	29.7	14.4	14.4	25.2	19.1	21.7	18.6	0.0	12.5
LnGrp LOS	C	B	B	C	B	B	C	B	C	B		B
Approach Vol, veh/h		1008			556			475			39	
Approach Delay, s/veh		21.2			18.3			23.2			16.6	
Approach LOS		C			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	31.3		23.4	12.7	31.9		23.4
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		* 5.2
Max Green Setting (Gmax), s	15.6	50.1		* 31	25.0	40.1		* 31
Max Q Clear Time (g_c+I1), s	7.6	14.5		2.7	8.6	7.3		14.2
Green Ext Time (p_c), s	0.2	11.8		0.3	0.4	5.0		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.8
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	675	66	123	355	13	219	53	265	11	11	32
Future Volume (veh/h)	155	675	66	123	355	13	219	53	265	11	11	32
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	178	776	54	141	408	7	156	195	162	13	13	13
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	1100	77	225	1174	20	378	397	529	67	67	313
Arrive On Green	0.13	0.33	0.33	0.13	0.33	0.33	0.21	0.21	0.21	0.07	0.07	0.07
Sat Flow, veh/h	1774	3354	233	1774	3561	61	1774	1863	1543	909	909	1544
Grp Volume(v), veh/h	178	409	421	141	203	212	156	195	162	26	0	13
Grp Sat Flow(s),veh/h/ln	1774	1770	1817	1774	1770	1852	1774	1863	1543	1817	0	1544
Q Serve(g_s), s	7.3	15.1	15.1	5.6	6.5	6.5	5.7	6.9	5.8	1.0	0.0	0.5
Cycle Q Clear(g_c), s	7.3	15.1	15.1	5.6	6.5	6.5	5.7	6.9	5.8	1.0	0.0	0.5
Prop In Lane	1.00		0.13	1.00		0.03	1.00		1.00	0.50		1.00
Lane Grp Cap(c), veh/h	222	581	596	225	583	610	378	397	529	135	0	313
V/C Ratio(X)	0.80	0.71	0.71	0.63	0.35	0.35	0.41	0.49	0.31	0.19	0.00	0.04
Avail Cap(c_a), veh/h	427	750	770	261	585	612	664	697	778	243	0	405
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.8	22.0	22.0	31.0	19.0	19.0	25.4	25.9	18.2	32.5	0.0	24.2
Incr Delay (d2), s/veh	6.6	3.7	3.6	3.7	0.8	0.7	1.5	2.0	0.7	1.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	8.0	8.2	3.0	3.3	3.4	2.9	3.7	2.5	0.6	0.0	0.2
LnGrp Delay(d),s/veh	38.4	25.7	25.6	34.7	19.7	19.7	26.9	27.9	18.9	34.0	0.0	24.3
LnGrp LOS	D	C	C	C	B	B	C	C	B	C		C
Approach Vol, veh/h		1008			556			513			39	
Approach Delay, s/veh		27.9			23.5			24.8			30.7	
Approach LOS		C			C			C			C	

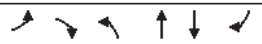
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.5	29.4		10.8	13.4	29.5		21.1
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		5.2
Max Green Setting (Gmax), s	11.0	31.7		* 10	18.0	24.7		28.0
Max Q Clear Time (g_c+I1), s	7.6	17.1		3.0	9.3	8.5		8.9
Green Ext Time (p_c), s	0.1	7.4		0.1	0.3	3.8		4.2

Intersection Summary	
HCM 2010 Ctrl Delay	26.0
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

07/30/2019



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	446	223	455	832	560	276
Future Volume (veh/h)	446	223	455	832	560	276
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1976	1863	1863	1863	1863
Adj Flow Rate, veh/h	485	138	495	904	609	239
Adj No. of Lanes	0	0	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	432	123	452	1126	584	497
Arrive On Green	0.31	0.31	0.25	0.60	0.31	0.31
Sat Flow, veh/h	1397	397	1774	1863	1863	1583
Grp Volume(v), veh/h	624	0	495	904	609	239
Grp Sat Flow(s),veh/h/ln	1797	0	1774	1863	1863	1583
Q Serve(g_s), s	34.0	0.0	28.0	41.0	34.5	13.4
Cycle Q Clear(g_c), s	34.0	0.0	28.0	41.0	34.5	13.4
Prop In Lane	0.78	0.22	1.00			1.00
Lane Grp Cap(c), veh/h	556	0	452	1126	584	497
V/C Ratio(X)	1.12	0.00	1.10	0.80	1.04	0.48
Avail Cap(c_a), veh/h	556	0	452	1126	584	497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	41.0	16.7	37.8	30.5
Incr Delay (d2), s/veh	76.8	0.0	71.0	4.0	48.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.7	0.0	22.6	22.1	25.6	5.9
LnGrp Delay(d),s/veh	114.8	0.0	112.0	20.7	86.5	30.8
LnGrp LOS	F		F	C	F	C
Approach Vol, veh/h	624			1399	848	
Approach Delay, s/veh	114.8			53.0	70.8	
Approach LOS	F			D	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		72.0		38.0	32.0	40.0		
Change Period (Y+Rc), s		5.5		4.0	4.0	5.5		
Max Green Setting (Gmax), s		66.5		34.0	28.0	34.5		
Max Q Clear Time (g_c+I1), s		43.0		36.0	30.0	36.5		
Green Ext Time (p_c), s		1.9		0.0	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	71.7
HCM 2010 LOS	E

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

07/30/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	446	223	455	832	560	276
Future Volume (veh/h)	446	223	455	832	560	276
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1937	1863	1863	1863	1863
Adj Flow Rate, veh/h	485	138	495	904	609	239
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	467	920	542	1314	677	976
Arrive On Green	0.25	0.25	0.31	0.71	0.36	0.36
Sat Flow, veh/h	1845	1647	1774	1863	1863	1583
Grp Volume(v), veh/h	485	138	495	904	609	239
Grp Sat Flow(s),veh/h/ln	1845	1647	1774	1863	1863	1583
Q Serve(g_s), s	38.0	0.0	40.3	41.7	46.4	10.2
Cycle Q Clear(g_c), s	38.0	0.0	40.3	41.7	46.4	10.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	467	920	542	1314	677	976
V/C Ratio(X)	1.04	0.15	0.91	0.69	0.90	0.24
Avail Cap(c_a), veh/h	467	920	542	1314	677	976
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.0	15.9	50.2	12.6	45.2	13.0
Incr Delay (d2), s/veh	51.7	0.0	19.6	3.0	17.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.1	5.7	22.7	22.2	27.1	7.6
LnGrp Delay(d),s/veh	107.7	16.0	69.8	15.6	62.4	13.6
LnGrp LOS	F	B	E	B	E	B
Approach Vol, veh/h	623			1399	848	
Approach Delay, s/veh	87.4			34.8	48.7	
Approach LOS	F			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		111.3		42.0	51.3	60.0		
Change Period (Y+Rc), s		5.5		4.0	5.5	* 5.5		
Max Green Setting (Gmax), s		102.5		38.0	44.0	* 55		
Max Q Clear Time (g_c+I1), s		43.7		40.0	42.3	48.4		
Green Ext Time (p_c), s		1.9		0.0	0.2	0.8		

Intersection Summary	
HCM 2010 Ctrl Delay	50.3
HCM 2010 LOS	D

Notes

HCM 2010 AWSC
12: Camino Colegio & Mitchell Dr

07/30/2019

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	327	148	36	196	27	128	19	42	65	12	13
Future Vol, veh/h	9	327	148	36	196	27	128	19	42	65	12	13
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	2	2	2	2	0	2	2	2	0	2	0
Mvmt Flow	10	376	170	41	225	31	147	22	48	75	14	15
Number of Lanes	1	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	3
HCM Control Delay	13.9	13	15.5	12.5
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	68%	100%	0%	0%	27%	0%	72%
Vol Thru, %	10%	0%	100%	42%	73%	78%	13%
Vol Right, %	22%	0%	0%	58%	0%	22%	14%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	189	9	218	257	134	125	90
LT Vol	128	9	0	0	36	0	65
Through Vol	19	0	218	109	98	98	12
RT Vol	42	0	0	148	0	27	13
Lane Flow Rate	217	10	251	295	154	144	103
Geometry Grp	7	7	7	7	8	8	7
Degree of Util (X)	0.439	0.019	0.435	0.479	0.315	0.282	0.219
Departure Headway (Hd)	7.271	6.831	6.356	5.945	7.351	7.058	7.611
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	497	527	571	609	491	510	473
Service Time	4.971	4.531	4.056	3.645	5.071	4.778	5.332
HCM Lane V/C Ratio	0.437	0.019	0.44	0.484	0.314	0.282	0.218
HCM Control Delay	15.5	9.7	13.9	14	13.4	12.5	12.5
HCM Lane LOS	C	A	B	B	B	B	B
HCM 95th-tile Q	2.2	0.1	2.2	2.6	1.3	1.1	0.8

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	219	191	69	150	7	72	13	35	24	24	38
Future Vol, veh/h	25	219	191	69	150	7	72	13	35	24	24	38
Conflicting Peds, #/hr	0	0	7	0	0	5	0	0	4	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	29	252	220	79	172	8	83	15	40	28	28	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	185	0	0	479	0	0	688	770	247	535	876	98
Stage 1	-	-	-	-	-	-	427	427	-	339	339	-
Stage 2	-	-	-	-	-	-	261	343	-	196	537	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	1394	-	-	1087	-	-	335	332	756	431	288	942
Stage 1	-	-	-	-	-	-	579	586	-	652	641	-
Stage 2	-	-	-	-	-	-	724	638	-	790	524	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1387	-	-	1080	-	-	270	298	748	362	258	935
Mov Cap-2 Maneuver	-	-	-	-	-	-	270	298	-	362	258	-
Stage 1	-	-	-	-	-	-	563	570	-	635	591	-
Stage 2	-	-	-	-	-	-	608	588	-	710	509	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.6	23	15.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	336	1387	-	-	1080	-	-	430
HCM Lane V/C Ratio	0.411	0.021	-	-	0.073	-	-	0.23
HCM Control Delay (s)	23	7.7	-	-	8.6	-	-	15.9
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.9	0.1	-	-	0.2	-	-	0.9

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	219	191	69	150	7	72	13	35	24	24	38
Future Vol, veh/h	25	219	191	69	150	7	72	13	35	24	24	38
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	29	252	220	79	172	8	83	15	40	28	28	44
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.2	9.9	11.5	10.5
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	60%	100%	0%	0%	100%	0%	0%	28%
Vol Thru, %	11%	0%	100%	28%	0%	100%	88%	28%
Vol Right, %	29%	0%	0%	72%	0%	0%	12%	44%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	25	146	264	69	100	57	86
LT Vol	72	25	0	0	69	0	0	24
Through Vol	13	0	146	73	0	100	50	24
RT Vol	35	0	0	191	0	0	7	38
Lane Flow Rate	138	29	168	303	79	115	66	99
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.252	0.049	0.266	0.435	0.142	0.19	0.106	0.176
Departure Headway (Hd)	6.567	6.186	5.697	5.166	6.439	5.948	5.844	6.393
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	548	579	631	698	557	602	613	560
Service Time	4.307	3.92	3.431	2.9	4.179	3.689	3.584	4.137
HCM Lane V/C Ratio	0.252	0.05	0.266	0.434	0.142	0.191	0.108	0.177
HCM Control Delay	11.5	9.2	10.5	11.8	10.2	10.1	9.3	10.5
HCM Lane LOS	B	A	B	B	B	B	A	B
HCM 95th-tile Q	1	0.2	1.1	2.2	0.5	0.7	0.4	0.6

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	264	5	11	194	7	13	0	25	29	0	10
Future Vol, veh/h	10	264	5	11	194	7	13	0	25	29	0	10
Conflicting Peds, #/hr	0	0	0	0	0	8	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	2	2	2	2	2	2	2	2	1	2	1
Mvmt Flow	11	287	5	12	211	8	14	0	27	32	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	227	0	0	292	0	0	442	563	146	413	561	118
Stage 1	-	-	-	-	-	-	312	312	-	247	247	-
Stage 2	-	-	-	-	-	-	130	251	-	166	314	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.52	6.54	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.51	4.02	3.31
Pot Cap-1 Maneuver	1346	-	-	1267	-	-	499	434	875	526	435	915
Stage 1	-	-	-	-	-	-	673	656	-	738	701	-
Stage 2	-	-	-	-	-	-	860	698	-	822	655	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1336	-	-	1267	-	-	486	422	875	499	423	908
Mov Cap-2 Maneuver	-	-	-	-	-	-	486	422	-	499	423	-
Stage 1	-	-	-	-	-	-	668	651	-	726	688	-
Stage 2	-	-	-	-	-	-	840	685	-	790	650	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4	10.6	11.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	687	1336	-	-	1267	-	-	564
HCM Lane V/C Ratio	0.06	0.008	-	-	0.009	-	-	0.075
HCM Control Delay (s)	10.6	7.7	-	-	7.9	0	-	11.9
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	97	218	112	115	160	91
Future Vol, veh/h	97	218	112	115	160	91
Conflicting Peds, #/hr	0	11	0	0	0	19
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	140	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	107	240	123	126	176	100

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	617	256	295	0	-	0
Stage 1	245	-	-	-	-	-
Stage 2	372	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	453	783	1266	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	394	761	1243	-	-	-
Mov Cap-2 Maneuver	394	-	-	-	-	-
Stage 1	704	-	-	-	-	-
Stage 2	684	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	4.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1243	-	394	761	-	-
HCM Lane V/C Ratio	0.099	-	0.271	0.315	-	-
HCM Control Delay (s)	8.2	-	17.5	11.9	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1.1	1.4	-	-

HCM 2010 TWSC

16: Bodway Pkwy & Waterside Ln

07/30/2019

Intersection												
Int Delay, s/veh	1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	9	0	0	51	0	170	5	0	370	2
Future Vol, veh/h	0	0	9	0	0	51	0	170	5	0	370	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	88	92	88	92	88	88	88	88	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	0	0	10	0	0	58	0	193	6	0	420	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	421	-	-	198	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	-	-	6.2	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	632	0	0	848	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	632	-	-	846	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	9.6	0	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	632	846	-	-
HCM Lane V/C Ratio	-	-	0.015	0.069	-	-
HCM Control Delay (s)	-	-	10.8	9.6	-	-
HCM Lane LOS	-	-	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.2	-	-

HCM 2010 TWSC

17: Bodway Pkwy & Wisdom Ln

07/30/2019

Intersection												
Int Delay, s/veh	1.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	18	17	0	51	7	118	10	19	367	4
Future Vol, veh/h	3	0	18	17	0	51	7	118	10	19	367	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	50	-	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	87	92	87	92	87	87	87	87	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	3	0	20	20	0	59	8	136	11	22	422	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	655	633	424	638	630	144	426	0	0	149	0	0
Stage 1	468	468	-	160	160	-	-	-	-	-	-	-
Stage 2	187	165	-	478	470	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.52	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4.018	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	379	397	630	392	399	909	1133	-	-	1445	-	-
Stage 1	575	561	-	847	766	-	-	-	-	-	-	-
Stage 2	815	762	-	572	560	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	348	387	630	372	389	907	1133	-	-	1442	-	-
Mov Cap-2 Maneuver	348	387	-	372	389	-	-	-	-	-	-	-
Stage 1	570	553	-	839	758	-	-	-	-	-	-	-
Stage 2	756	754	-	546	552	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.6	10.7	0.4	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1133	-	-	565	372	907	1442	-	-
HCM Lane V/C Ratio	0.007	-	-	0.04	0.053	0.065	0.015	-	-
HCM Control Delay (s)	8.2	0	-	11.6	15.2	9.2	7.5	-	-
HCM Lane LOS	A	A	-	B	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.2	0	-	-

HCM 2010 Roundabout
18: Bodway Pkwy & SOMO Ave/Valley House Dr

07/30/2019

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	137	349	11	452
Demand Flow Rate, veh/h	139	356	11	461
Vehicles Circulating, veh/h	428	22	541	229
Vehicles Exiting, veh/h	262	530	26	149
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	5
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	7.1	6.5	5.7	10.9
Approach LOS	A	A	A	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	139	356	11	461
Cap Entry Lane, veh/h	737	1105	658	899
Entry HV Adj Factor	0.985	0.979	0.996	0.980
Flow Entry, veh/h	137	349	11	452
Cap Entry, veh/h	726	1083	655	880
V/C Ratio	0.189	0.322	0.017	0.513
Control Delay, s/veh	7.1	6.5	5.7	10.9
LOS	A	A	A	B
95th %tile Queue, veh	1	1	0	3

HCM 2010 Signalized Intersection Summary
19: Petaluma Hill Rd & Valley House Dr

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	0	407	1	0	2	322	945	4	9	844	93
Future Volume (veh/h)	137	0	407	1	0	2	322	945	4	9	844	93
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	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	151	0	203	1	0	0	354	1038	4	10	927	98
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	0	240	3	0	0	293	1189	5	17	904	768
Arrive On Green	0.15	0.00	0.15	0.00	0.00	0.00	0.17	0.64	0.64	0.01	0.49	0.49
Sat Flow, veh/h	1774	0	1583	1774	0	0	1774	1854	7	1774	1863	1582
Grp Volume(v), veh/h	151	0	203	1	0	0	354	0	1042	10	927	98
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	0	1774	0	1861	1774	1863	1582
Q Serve(g_s), s	7.6	0.0	12.1	0.1	0.0	0.0	16.0	0.0	44.2	0.5	47.0	3.3
Cycle Q Clear(g_c), s	7.6	0.0	12.1	0.1	0.0	0.0	16.0	0.0	44.2	0.5	47.0	3.3
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	269	0	240	3	0	0	293	0	1193	17	904	768
V/C Ratio(X)	0.56	0.00	0.85	0.34	0.00	0.00	1.21	0.00	0.87	0.58	1.03	0.13
Avail Cap(c_a), veh/h	403	0	360	110	0	0	293	0	1193	73	904	768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	0.0	40.0	48.3	0.0	0.0	40.4	0.0	14.2	47.7	24.9	13.7
Incr Delay (d2), s/veh	0.7	0.0	7.4	44.8	0.0	0.0	121.0	0.0	7.1	10.8	36.5	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	3.8	0.0	5.7	0.1	0.0	0.0	17.6	0.0	24.6	0.3	33.0	1.4
LnGrp Delay(d),s/veh	38.8	0.0	47.4	93.1	0.0	0.0	161.4	0.0	21.3	58.6	61.4	13.7
LnGrp LOS	D		D	F			F		C	E	F	B
Approach Vol, veh/h		354			1			1396			1035	
Approach Delay, s/veh		43.7			93.1			56.8			56.9	
Approach LOS		D			F			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	67.6		18.7	20.0	52.5		5.7
Change Period (Y+Rc), s	4.0	5.5		4.0	4.0	5.5		5.5
Max Green Setting (Gmax), s	4.9	59.0		22.0	16.0	47.0		6.0
Max Q Clear Time (g_c+I1), s	2.5	46.2		14.1	18.0	49.0		2.1
Green Ext Time (p_c), s	0.0	2.1		0.6	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	55.2
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
19: Petaluma Hill Rd & Valley House Dr

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	0	407	1	0	2	322	945	4	9	844	93
Future Volume (veh/h)	137	0	407	1	0	2	322	945	4	9	844	93
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	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	151	0	203	1	0	0	354	1038	4	10	927	98
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	0	501	3	0	0	355	1224	5	151	1034	1063
Arrive On Green	0.12	0.00	0.12	0.00	0.00	0.00	0.20	0.66	0.66	0.09	0.56	0.56
Sat Flow, veh/h	1774	0	1583	1774	0	0	1774	1854	7	1774	1863	1582
Grp Volume(v), veh/h	151	0	203	1	0	0	354	0	1042	10	927	98
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	0	1774	0	1861	1774	1863	1582
Q Serve(g_s), s	12.3	0.0	15.1	0.1	0.0	0.0	29.9	0.0	64.8	0.8	66.1	3.3
Cycle Q Clear(g_c), s	12.3	0.0	15.1	0.1	0.0	0.0	29.9	0.0	64.8	0.8	66.1	3.3
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	207	0	501	3	0	0	355	0	1229	151	1034	1063
V/C Ratio(X)	0.73	0.00	0.40	0.35	0.00	0.00	1.00	0.00	0.85	0.07	0.90	0.09
Avail Cap(c_a), veh/h	260	0	549	71	0	0	355	0	1229	151	1034	1063
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.23	0.00	0.23	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.0	0.0	40.2	74.8	0.0	0.0	60.0	0.0	19.7	63.1	29.6	8.6
Incr Delay (d2), s/veh	5.1	0.0	0.2	45.5	0.0	0.0	22.3	0.0	1.8	0.1	12.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.0	6.6	0.1	0.0	0.0	16.8	0.0	33.6	0.4	37.2	2.0
LnGrp Delay(d),s/veh	69.1	0.0	40.4	120.3	0.0	0.0	82.3	0.0	21.5	63.2	41.6	8.8
LnGrp LOS	E		D	F			F		C	E	D	A
Approach Vol, veh/h		354			1			1396			1035	
Approach Delay, s/veh		52.6			120.3			36.9			38.7	
Approach LOS		D			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.3	104.5		21.5	34.0	88.8		5.7
Change Period (Y+Rc), s	5.5	* 5.5		4.0	4.0	5.5		5.5
Max Green Setting (Gmax), s	4.6	* 99		22.0	30.0	73.0		6.0
Max Q Clear Time (g_c+I1), s	2.8	66.8		17.1	31.9	68.1		2.1
Green Ext Time (p_c), s	0.0	2.4		0.4	0.0	1.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	39.6
HCM 2010 LOS	D

Notes

HCM 2010 TWSC
20: Old Redwood Hwy & E Railroad Ave

07/30/2019

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	42	34	9	39	33	37	284	15	34	600	43
Future Vol, veh/h	26	42	34	9	39	33	37	284	15	34	600	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	47	38	10	44	37	42	319	17	38	674	48

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1226	1194	698	1229	1210	328	722	0	0	336	0	0
Stage 1	774	774	-	412	412	-	-	-	-	-	-	-
Stage 2	452	420	-	817	798	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	155	187	440	155	183	713	880	-	-	1223	-	-
Stage 1	391	408	-	617	594	-	-	-	-	-	-	-
Stage 2	587	589	-	370	398	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	111	172	440	105	169	713	880	-	-	1223	-	-
Mov Cap-2 Maneuver	111	172	-	105	169	-	-	-	-	-	-	-
Stage 1	372	395	-	587	565	-	-	-	-	-	-	-
Stage 2	489	561	-	288	386	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	52.3	31.8	1	0.4
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	880	-	-	184	223	1223	-	-
HCM Lane V/C Ratio	0.047	-	-	0.623	0.408	0.031	-	-
HCM Control Delay (s)	9.3	-	-	52.3	31.8	8	-	-
HCM Lane LOS	A	-	-	F	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	3.5	1.9	0.1	-	-

HCM 2010 Signalized Intersection Summary
20: Old Redwood Hwy & E Railroad Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	42	34	9	39	33	37	284	15	34	600	43
Future Volume (veh/h)	26	42	34	9	39	33	37	284	15	34	600	43
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	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	29	47	38	10	44	37	42	319	17	38	674	48
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	135	162	104	94	175	130	78	849	45	73	827	59
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.04	0.48	0.48	0.04	0.48	0.48
Sat Flow, veh/h	243	865	554	79	933	694	1774	1753	93	1774	1719	122
Grp Volume(v), veh/h	114	0	0	91	0	0	42	0	336	38	0	722
Grp Sat Flow(s),veh/h/ln	1663	0	0	1707	0	0	1774	0	1846	1774	0	1841
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	5.8	1.1	0.0	16.9
Cycle Q Clear(g_c), s	2.8	0.0	0.0	2.3	0.0	0.0	1.2	0.0	5.8	1.1	0.0	16.9
Prop In Lane	0.25		0.33	0.11		0.41	1.00		0.05	1.00		0.07
Lane Grp Cap(c), veh/h	401	0	0	398	0	0	78	0	895	73	0	886
V/C Ratio(X)	0.28	0.00	0.00	0.23	0.00	0.00	0.54	0.00	0.38	0.52	0.00	0.81
Avail Cap(c_a), veh/h	894	0	0	912	0	0	193	0	1611	229	0	1643
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	0.0	17.6	0.0	0.0	23.6	0.0	8.2	23.7	0.0	11.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.3	0.0	0.0	5.6	0.0	0.3	5.7	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	1.1	0.0	0.0	0.7	0.0	3.0	0.6	0.0	8.9
LnGrp Delay(d),s/veh	18.2	0.0	0.0	17.9	0.0	0.0	29.2	0.0	8.5	29.4	0.0	13.0
LnGrp LOS	B			B			C		A	C		B
Approach Vol, veh/h		114			91			378			760	
Approach Delay, s/veh		18.2			17.9			10.8			13.9	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	29.4		14.4	6.7	29.3		14.4
Change Period (Y+Rc), s	4.5	5.0		5.0	4.5	5.0		5.0
Max Green Setting (Gmax), s	6.5	44.0		25.0	5.5	45.0		25.0
Max Q Clear Time (g_c+I1), s	13.1	7.8		4.8	3.2	18.9		4.3
Green Ext Time (p_c), s	0.0	2.4		0.5	0.0	5.4		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	13.6
HCM 2010 LOS	B

HCM 2010 TWSC
21: E Railroad Ave & Bodway Pkwy

07/30/2019

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	108	85	10	26	11
Future Vol, veh/h	6	108	85	10	26	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	7	124	98	11	30	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	109	0	-	0	242	104
Stage 1	-	-	-	-	104	-
Stage 2	-	-	-	-	138	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1488	-	-	-	749	953
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1488	-	-	-	745	953
Mov Cap-2 Maneuver	-	-	-	-	745	-
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1488	-	-	-	797
HCM Lane V/C Ratio	0.005	-	-	-	0.053
HCM Control Delay (s)	7.4	0	-	-	9.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 2010 TWSC
22: Petaluma Hill Rd & E Railroad Ave 07/30/2019

Intersection	
Int Delay, s/veh	176.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	93	0	39	1	1	11	23	1178	0	37	1158	66
Future Vol, veh/h	93	0	39	1	1	11	23	1178	0	37	1158	66
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	99	0	41	1	1	12	24	1253	0	39	1232	70

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2618	2611	1232	2667	2681	1253	1302	0	0	1253	0	0
Stage 1	1310	1310	-	1301	1301	-	-	-	-	-	-	-
Stage 2	1308	1301	-	1366	1380	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 16	24	216	15	22	210	532	-	-	555	-	-
Stage 1	196	229	-	198	231	-	-	-	-	-	-	-
Stage 2	196	231	-	182	212	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 13	21	216	11	20	210	532	-	-	555	-	-
Mov Cap-2 Maneuver	~ 13	21	-	11	20	-	-	-	-	-	-	-
Stage 1	187	213	-	189	221	-	-	-	-	-	-	-
Stage 2	176	221	-	137	197	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 3480	72.2	0.2	0.4
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	532	-	-	18	67	555	-	-
HCM Lane V/C Ratio	0.046	-	-	7.801	0.206	0.071	-	-
HCM Control Delay (s)	12.1	-	-	$ 3480	72.2	12	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	18.2	0.7	0.2	-	-

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

HCM 2010 Signalized Intersection Summary
22: Petaluma Hill Rd & E Railroad Ave 07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	0	39	1	1	11	23	1178	0	37	1158	66
Future Volume (veh/h)	93	0	39	1	1	11	23	1178	0	37	1158	66
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	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	99	0	41	1	1	12	24	1253	0	39	1232	70
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	0	249	28	24	144	77	1237	0	127	1290	1096
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.04	0.66	0.00	0.07	0.69	0.69
Sat Flow, veh/h	365	0	1583	0	152	914	1774	1863	0	1774	1863	1583
Grp Volume(v), veh/h	99	0	41	14	0	0	24	1253	0	39	1232	70
Grp Sat Flow(s),veh/h/ln	365	0	1583	1066	0	0	1774	1863	0	1774	1863	1583
Q Serve(g_s), s	0.0	0.0	3.1	0.0	0.0	0.0	1.8	93.0	0.0	2.9	84.1	2.0
Cycle Q Clear(g_c), s	22.0	0.0	3.1	22.0	0.0	0.0	1.8	93.0	0.0	2.9	84.1	2.0
Prop In Lane	1.00		1.00	0.07		0.86	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	109	0	249	195	0	0	77	1237	0	127	1290	1096
V/C Ratio(X)	0.91	0.00	0.16	0.07	0.00	0.00	0.31	1.01	0.00	0.31	0.96	0.06
Avail Cap(c_a), veh/h	109	0	249	195	0	0	127	1237	0	127	1290	1096
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.6	0.0	51.1	50.4	0.0	0.0	64.9	23.5	0.0	61.7	19.6	6.9
Incr Delay (d2), s/veh	58.5	0.0	0.3	0.2	0.0	0.0	2.3	28.7	0.0	1.4	15.6	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	5.6	0.0	1.4	0.5	0.0	0.0	0.9	57.3	0.0	1.5	48.4	0.9
LnGrp Delay(d),s/veh	122.2	0.0	51.4	50.5	0.0	0.0	67.2	52.2	0.0	63.1	35.2	7.0
LnGrp LOS	F		D	D			E	F		E	D	A
Approach Vol, veh/h		140			14			1277			1341	
Approach Delay, s/veh		101.4			50.5			52.5			34.5	
Approach LOS		F			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	98.0		27.0	11.1	101.9		27.0
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	93.0		22.0	10.0	93.0		22.0
Max Q Clear Time (g_c+I1), s	4.9	95.0		24.0	3.8	86.1		24.0
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	4.9		0.0

Intersection Summary		
HCM 2010 Ctrl Delay	46.3	
HCM 2010 LOS	D	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	163	14	28	86	574	14	476	8	502	603	14
Future Volume (veh/h)	28	163	14	28	86	574	14	476	8	502	603	14
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		0.98	1.00		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	1976	1937	1976	1976	1937	1976	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	29	172	12	29	91	509	15	501	5	528	635	14
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	397	26	49	88	437	13	432	4	571	584	13
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.23	0.23	0.23	0.32	0.32	0.32
Sat Flow, veh/h	107	1231	80	46	273	1353	56	1857	19	1774	1816	40
Grp Volume(v), veh/h	213	0	0	629	0	0	521	0	0	528	0	649
Grp Sat Flow(s),veh/h/ln	1417	0	0	1673	0	0	1931	0	0	1774	0	1856
Q Serve(g_s), s	0.0	0.0	0.0	21.5	0.0	0.0	25.6	0.0	0.0	31.6	0.0	35.4
Cycle Q Clear(g_c), s	9.3	0.0	0.0	35.5	0.0	0.0	25.6	0.0	0.0	31.6	0.0	35.4
Prop In Lane	0.14		0.06	0.05		0.81	0.03		0.01	1.00		0.02
Lane Grp Cap(c), veh/h	495	0	0	574	0	0	449	0	0	571	0	597
V/C Ratio(X)	0.43	0.00	0.00	1.10	0.00	0.00	1.16	0.00	0.00	0.92	0.00	1.09
Avail Cap(c_a), veh/h	495	0	0	574	0	0	449	0	0	571	0	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	0.0	38.2	0.0	0.0	42.2	0.0	0.0	36.0	0.0	37.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	66.4	0.0	0.0	94.0	0.0	0.0	20.7	0.0	62.6
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	4.9	0.0	0.0	28.0	0.0	0.0	25.3	0.0	0.0	18.7	0.0	28.5
LnGrp Delay(d),s/veh	28.6	0.0	0.0	104.6	0.0	0.0	136.2	0.0	0.0	56.7	0.0	99.9
LnGrp LOS	C			F			F			E		F
Approach Vol, veh/h		213			629			521			1177	
Approach Delay, s/veh		28.6			104.6			136.2			80.5	
Approach LOS		C			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		30.1		40.0		39.9		40.0
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		25.6		35.5		35.4		35.5
Max Q Clear Time (g_c+I1), s		27.6		11.3		37.4		37.5
Green Ext Time (p_c), s		0.0		0.4		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	93.6
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	163	14	28	86	574	14	476	8	502	603	14
Future Volume (veh/h)	28	163	14	28	86	574	14	476	8	502	603	14
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		0.98	1.00		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	1976	1937	1976	1976	1937	1937	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	29	172	12	29	91	509	15	501	5	528	635	14
Adj No. of Lanes	0	1	0	0	1	1	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	319	21	110	319	957	16	520	5	656	671	15
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.28	0.28	0.28	0.37	0.37	0.37
Sat Flow, veh/h	138	1505	98	303	1505	1647	56	1857	19	1774	1816	40
Grp Volume(v), veh/h	213	0	0	120	0	509	521	0	0	528	0	649
Grp Sat Flow(s),veh/h/ln	1741	0	0	1808	0	1647	1931	0	0	1774	0	1856
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	18.3	25.9	0.0	0.0	26.0	0.0	33.1
Cycle Q Clear(g_c), s	10.0	0.0	0.0	5.1	0.0	18.3	25.9	0.0	0.0	26.0	0.0	33.1
Prop In Lane	0.14		0.06	0.24		1.00	0.03		0.01	1.00		0.02
Lane Grp Cap(c), veh/h	411	0	0	429	0	957	541	0	0	656	0	686
V/C Ratio(X)	0.52	0.00	0.00	0.28	0.00	0.53	0.96	0.00	0.00	0.81	0.00	0.95
Avail Cap(c_a), veh/h	534	0	0	558	0	1081	541	0	0	750	0	784
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.1	0.0	0.0	32.3	0.0	12.4	34.6	0.0	0.0	27.6	0.0	29.8
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.1	0.0	0.2	29.5	0.0	0.0	4.9	0.0	18.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	0.0	2.7	0.0	13.6	18.2	0.0	0.0	13.7	0.0	20.4
LnGrp Delay(d),s/veh	34.5	0.0	0.0	32.4	0.0	12.5	64.1	0.0	0.0	32.5	0.0	47.9
LnGrp LOS	C			C		B	E			C		D
Approach Vol, veh/h		213			629			521			1177	
Approach Delay, s/veh		34.5			16.3			64.1			41.0	
Approach LOS		C			B			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		31.8		25.2		40.5		25.2
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		27.3		28.0		41.2		28.0
Max Q Clear Time (g_c+I1), s		27.9		12.0		35.1		20.3
Green Ext Time (p_c), s		0.0		0.4		1.0		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	39.1
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
24: N McDowell Blvd & Old Redwood Hwy

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	856	843	127	638	19	491	68	84	8	26	74
Future Volume (veh/h)	252	856	843	127	638	19	491	68	84	8	26	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	262	892	0	132	665	16	562	0	40	8	27	31
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	246	964	739	573	1638	39	698	0	309	145	152	129
Arrive On Green	0.23	0.45	0.00	0.32	0.46	0.46	0.20	0.00	0.20	0.08	0.08	0.08
Sat Flow, veh/h	1774	3539	1583	1774	3532	85	3548	0	1569	1774	1863	1572
Grp Volume(v), veh/h	262	892	0	132	333	348	562	0	40	8	27	31
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1848	1774	0	1569	1774	1863	1572
Q Serve(g_s), s	18.0	30.8	0.0	7.1	16.2	16.2	19.7	0.0	2.7	0.5	1.8	2.4
Cycle Q Clear(g_c), s	18.0	30.8	0.0	7.1	16.2	16.2	19.7	0.0	2.7	0.5	1.8	2.4
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	964	739	573	820	857	698	0	309	145	152	129
V/C Ratio(X)	1.07	0.93	0.00	0.23	0.41	0.41	0.80	0.00	0.13	0.06	0.18	0.24
Avail Cap(c_a), veh/h	246	964	739	573	820	857	1048	0	463	420	441	372
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.64	0.64	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	34.2	0.0	32.2	23.0	23.1	49.8	0.0	43.0	55.0	55.6	55.9
Incr Delay (d2), s/veh	64.6	11.1	0.0	0.1	1.5	1.4	1.5	0.0	0.1	0.1	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.2	16.3	0.0	3.5	8.2	8.6	9.7	0.0	1.2	0.3	0.9	1.1
LnGrp Delay(d),s/veh	114.6	45.3	0.0	32.3	24.5	24.5	51.4	0.0	43.1	55.1	55.8	56.3
LnGrp LOS	F	D		C	C	C	D		D	E	E	E
Approach Vol, veh/h		1154			813			602			66	
Approach Delay, s/veh		61.0			25.8			50.8			55.9	
Approach LOS		E			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	39.3		14.5	22.0	64.3		29.2
Change Period (Y+Rc), s	5.0	* 5		* 4.7	4.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	* 34		* 30	18.0	26.3		37.0
Max Q Clear Time (g_c+I1), s	19.7	32.8		4.4	20.0	18.2		21.7
Green Ext Time (p_c), s	0.0	1.0		0.1	0.0	3.7		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	47.7
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
25: US 101 NB Off-ramp & Old Redwood Hwy

07/30/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1463	478	0	1172	434	567
Future Volume (veh/h)	1463	478	0	1172	434	567
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	1493	0	0	1196	443	461
Adj No. of Lanes	2	1	0	2	2	2
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2271	1016	0	2271	788	638
Arrive On Green	0.64	0.00	0.00	1.00	0.23	0.23
Sat Flow, veh/h	3632	1583	0	3725	3442	2787
Grp Volume(v), veh/h	1493	0	0	1196	443	461
Grp Sat Flow(s),veh/h/ln	1770	1583	0	1770	1721	1393
Q Serve(g_s), s	17.0	0.0	0.0	0.0	7.4	9.9
Cycle Q Clear(g_c), s	17.0	0.0	0.0	0.0	7.4	9.9
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2271	1016	0	2271	788	638
V/C Ratio(X)	0.66	0.00	0.00	0.53	0.56	0.72
Avail Cap(c_a), veh/h	2271	1016	0	2271	1043	845
HCM Platoon Ratio	1.00	1.00	1.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.84	1.00	1.00
Uniform Delay (d), s/veh	7.2	0.0	0.0	0.0	22.2	23.1
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.7	0.6	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.0	0.0	0.2	3.6	4.0
LnGrp Delay(d),s/veh	8.7	0.0	0.0	0.7	22.8	25.2
LnGrp LOS	A			A	C	C
Approach Vol, veh/h	1493			1196	904	
Approach Delay, s/veh	8.7			0.7	24.0	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		45.7				45.7		19.3
Change Period (Y+Rc), s		5.1				5.1		5.1
Max Green Setting (Gmax), s		35.8				35.8		19.0
Max Q Clear Time (g_c+I1), s		19.0				2.0		11.9
Green Ext Time (p_c), s		12.2				15.1		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	9.9
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1: Snyder Ln & Rohnert Park Expwy

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	338	451	321	74	404	185	307	457	89	211	499	302
Future Volume (veh/h)	338	451	321	74	404	185	307	457	89	211	499	302
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		0.98	1.00		0.99	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	389	518	355	85	464	208	353	525	99	243	574	333
Adj No. of Lanes	2	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	456	817	574	199	745	526	465	1163	676	429	1125	695
Arrive On Green	0.13	0.23	0.23	0.11	0.21	0.21	0.14	0.33	0.33	0.12	0.32	0.32
Sat Flow, veh/h	3442	3539	1559	1774	3539	1560	3442	3539	1519	3442	3539	1528
Grp Volume(v), veh/h	389	518	355	85	464	208	353	525	99	243	574	333
Grp Sat Flow(s),veh/h/ln	1721	1770	1559	1774	1770	1560	1721	1770	1519	1721	1770	1528
Q Serve(g_s), s	10.6	12.7	18.0	4.3	11.4	9.8	9.5	11.2	3.7	6.4	12.7	14.7
Cycle Q Clear(g_c), s	10.6	12.7	18.0	4.3	11.4	9.8	9.5	11.2	3.7	6.4	12.7	14.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	456	817	574	199	745	526	465	1163	676	429	1125	695
V/C Ratio(X)	0.85	0.63	0.62	0.43	0.62	0.40	0.76	0.45	0.15	0.57	0.51	0.48
Avail Cap(c_a), veh/h	537	1668	949	277	1664	931	537	1664	892	537	1664	928
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	33.3	25.0	39.8	34.5	24.5	40.0	25.4	16.1	39.6	26.7	18.6
Incr Delay (d2), s/veh	9.9	0.3	0.4	0.5	0.3	0.2	4.3	0.1	0.0	0.4	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	6.2	7.7	2.1	5.6	4.2	4.8	5.5	1.6	3.1	6.2	6.2
LnGrp Delay(d),s/veh	50.7	33.6	25.4	40.4	34.8	24.7	44.4	25.5	16.1	40.1	26.8	18.8
LnGrp LOS	D	C	C	D	C	C	D	C	B	D	C	B
Approach Vol, veh/h		1262			757			977			1150	
Approach Delay, s/veh		36.6			32.6			31.4			27.3	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	37.4	14.8	28.0	17.0	36.4	16.7	26.0
Change Period (Y+Rc), s	4.0	5.8	4.0	* 5.8	4.0	5.8	4.0	* 5.8
Max Green Setting (Gmax), s	15.0	45.2	15.0	* 45	15.0	45.2	15.0	* 45
Max Q Clear Time (g_c+I1), s	8.4	13.2	6.3	20.0	11.5	16.7	12.6	13.4
Green Ext Time (p_c), s	0.1	1.2	0.0	1.3	0.1	1.4	0.1	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	32.1
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
2: US 101 SB Ramps & Gravenstein Hwy

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	619	314	313	970	0	0	0	0	473	0	308
Future Volume (veh/h)	0	619	314	313	970	0	0	0	0	473	0	308
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	0	1863	1937	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	645	233	326	1010	0				493	0	214
Adj No. of Lanes	0	2	1	1	2	0				2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1142	523	664	2611	0				621	0	281
Arrive On Green	0.00	0.32	0.32	0.75	1.00	0.00				0.18	0.00	0.18
Sat Flow, veh/h	0	3632	1622	1774	3632	0				3442	0	1555
Grp Volume(v), veh/h	0	645	233	326	1010	0				493	0	214
Grp Sat Flow(s),veh/h/ln	0	1770	1622	1774	1770	0				1721	0	1555
Q Serve(g_s), s	0.0	16.6	12.5	8.1	0.0	0.0				15.1	0.0	14.4
Cycle Q Clear(g_c), s	0.0	16.6	12.5	8.1	0.0	0.0				15.1	0.0	14.4
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1142	523	664	2611	0				621	0	281
V/C Ratio(X)	0.00	0.56	0.45	0.49	0.39	0.00				0.79	0.00	0.76
Avail Cap(c_a), veh/h	0	1142	523	664	2611	0				829	0	375
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.80	0.80	0.93	0.93	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	30.9	29.5	9.7	0.0	0.0				43.1	0.0	42.8
Incr Delay (d2), s/veh	0.0	1.6	2.2	0.2	0.4	0.0				2.7	0.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.3	5.9	3.8	0.1	0.0				7.4	0.0	6.5
LnGrp Delay(d),s/veh	0.0	32.5	31.7	9.9	0.4	0.0				45.9	0.0	47.0
LnGrp LOS		C	C	A	A					D		D
Approach Vol, veh/h		878			1336						707	
Approach Delay, s/veh		32.3			2.7						46.2	
Approach LOS		C			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	5.6	40.0		24.4		85.6		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	4.5	35.5		26.5		74.5		
Max Q Clear Time (g_c+I1), s	0.1	18.6		17.1		2.0		
Green Ext Time (p_c), s	0.3	4.8		2.8		7.7		

Intersection Summary	
HCM 2010 Ctrl Delay	22.1
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
3: US 101 NB Off-ramp & Gravenstein Hwy

05/15/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1091	0	0	888	408	125
Future Volume (veh/h)	1091	0	0	888	408	125
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863
Adj Flow Rate, veh/h	1136	0	0	925	425	105
Adj No. of Lanes	2	0	0	3	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	2614	0	0	3756	618	284
Arrive On Green	0.49	0.00	0.00	0.74	0.18	0.18
Sat Flow, veh/h	3725	0	0	5421	3442	1583
Grp Volume(v), veh/h	1136	0	0	925	425	105
Grp Sat Flow(s),veh/h/ln	1770	0	0	1695	1721	1583
Q Serve(g_s), s	22.7	0.0	0.0	6.4	12.7	6.4
Cycle Q Clear(g_c), s	22.7	0.0	0.0	6.4	12.7	6.4
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2614	0	0	3756	618	284
V/C Ratio(X)	0.43	0.00	0.00	0.25	0.69	0.37
Avail Cap(c_a), veh/h	2614	0	0	3756	1173	540
HCM Platoon Ratio	0.67	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.00	0.00	0.60	1.00	1.00
Uniform Delay (d), s/veh	13.0	0.0	0.0	4.6	42.2	39.6
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.1	1.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	2.9	6.1	2.9
LnGrp Delay(d),s/veh	13.4	0.0	0.0	4.7	43.6	40.4
LnGrp LOS	B			A	D	D
Approach Vol, veh/h	1136			925	530	
Approach Delay, s/veh	13.4			4.7	43.0	
Approach LOS	B			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		85.7				85.7		24.3
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		63.5				63.5		37.5
Max Q Clear Time (g_c+I1), s		24.7				8.4		14.7
Green Ext Time (p_c), s		17.8				14.6		5.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Old Redwood Hwy & Gravenstein Hwy/Gravenstein Way

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	551	75	592	58	105	68	328	817	28	25	117	449
Future Volume (veh/h)	551	75	592	58	105	68	328	817	28	25	117	449
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	568	77	0	60	108	59	338	842	20	26	121	447
Adj No. of Lanes	2	1	1	1	1	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	729	395	335	210	133	73	399	814	19	431	453	720
Arrive On Green	0.21	0.21	0.00	0.12	0.12	0.12	0.22	0.22	0.22	0.24	0.24	0.24
Sat Flow, veh/h	3442	1863	1583	1774	1128	616	1774	3621	86	1774	1863	1583
Grp Volume(v), veh/h	568	77	0	60	0	167	338	433	429	26	121	447
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	0	1744	1774	1863	1844	1774	1863	1583
Q Serve(g_s), s	13.5	2.9	0.0	2.7	0.0	8.1	15.8	19.5	19.5	1.0	4.6	18.6
Cycle Q Clear(g_c), s	13.5	2.9	0.0	2.7	0.0	8.1	15.8	19.5	19.5	1.0	4.6	18.6
Prop In Lane	1.00		1.00	1.00		0.35	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	729	395	335	210	0	206	399	419	415	431	453	720
V/C Ratio(X)	0.78	0.20	0.00	0.29	0.00	0.81	0.85	1.03	1.03	0.06	0.27	0.62
Avail Cap(c_a), veh/h	953	516	438	491	0	483	399	419	415	512	537	792
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	28.1	0.0	34.9	0.0	37.3	32.2	33.6	33.6	25.2	26.6	17.9
Incr Delay (d2), s/veh	2.2	0.1	0.0	0.3	0.0	2.9	14.8	53.0	53.2	0.0	0.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	1.5	0.0	1.3	0.0	4.1	9.3	16.1	15.9	0.5	2.4	10.7
LnGrp Delay(d),s/veh	34.4	28.2	0.0	35.2	0.0	40.2	46.9	86.6	86.8	25.2	26.7	18.7
LnGrp LOS	C	C		D		D	D	F	F	C	C	B
Approach Vol, veh/h		645			227			1200			594	
Approach Delay, s/veh		33.7			38.8			75.5			20.6	
Approach LOS		C			D			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		22.9		25.6		14.2		24.0
Change Period (Y+Rc), s		4.5		4.5		4.0		4.5
Max Green Setting (Gmax), s		24.0		25.0		24.0		19.5
Max Q Clear Time (g_c+I1), s		15.5		20.6		10.1		21.5
Green Ext Time (p_c), s		2.4		0.5		0.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	50.0
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave 05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	265	6	22	457	669	17	413	11	374	333	63
Future Volume (veh/h)	87	265	6	22	457	669	17	413	11	374	333	63
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	91	276	4	23	476	650	18	430	10	390	347	61
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	718	597	34	601	536	29	563	13	421	709	594
Arrive On Green	0.07	0.39	0.39	0.02	0.34	0.34	0.02	0.16	0.16	0.24	0.38	0.38
Sat Flow, veh/h	1774	1863	1548	1774	1770	1579	1774	3533	82	1774	1863	1560
Grp Volume(v), veh/h	91	276	4	23	476	650	18	215	225	390	347	61
Grp Sat Flow(s),veh/h/ln	1774	1863	1548	1774	1770	1579	1774	1770	1846	1774	1863	1560
Q Serve(g_s), s	4.6	9.7	0.1	1.2	22.0	30.8	0.9	10.5	10.6	19.5	12.9	2.3
Cycle Q Clear(g_c), s	4.6	9.7	0.1	1.2	22.0	30.8	0.9	10.5	10.6	19.5	12.9	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	116	718	597	34	601	536	29	282	294	421	709	594
V/C Ratio(X)	0.79	0.38	0.01	0.67	0.79	1.21	0.63	0.76	0.76	0.93	0.49	0.10
Avail Cap(c_a), veh/h	131	718	597	111	601	536	106	624	651	440	1008	844
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	20.1	17.2	44.2	27.1	30.0	44.4	36.5	36.5	33.8	21.4	18.1
Incr Delay (d2), s/veh	20.6	0.1	0.0	8.0	6.6	111.9	8.2	1.6	1.6	24.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	5.0	0.1	0.6	11.8	29.9	0.5	5.3	5.5	12.4	6.6	1.0
LnGrp Delay(d),s/veh	62.4	20.2	17.2	52.2	33.7	141.9	52.6	38.1	38.1	58.3	21.6	18.1
LnGrp LOS	E	C	B	D	C	F	D	D	D	E	C	B
Approach Vol, veh/h		371			1149			458			798	
Approach Delay, s/veh		30.5			95.2			38.6			39.3	
Approach LOS		C			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	39.5	6.0	39.0	10.4	35.3	26.0	19.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.7	31.8	5.4	49.1	6.7	30.8	22.5	32.0
Max Q Clear Time (g_c+I1), s	3.2	11.7	2.9	14.9	6.6	32.8	21.5	12.6
Green Ext Time (p_c), s	0.0	0.5	0.0	0.7	0.0	0.0	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	61.2
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave 04/23/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	265	6	22	457	669	17	413	11	374	333	63
Future Volume (veh/h)	87	265	6	22	457	669	17	413	11	374	333	63
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	91	276	4	23	476	650	18	430	10	390	347	61
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	698	580	35	613	897	29	568	13	423	714	591
Arrive On Green	0.07	0.37	0.37	0.02	0.33	0.33	0.02	0.16	0.16	0.24	0.38	0.38
Sat Flow, veh/h	1774	1863	1548	1774	1863	1579	1774	3533	82	1774	1863	1544
Grp Volume(v), veh/h	91	276	4	23	476	650	18	215	225	390	347	61
Grp Sat Flow(s),veh/h/ln	1774	1863	1548	1774	1863	1579	1774	1770	1846	1774	1863	1544
Q Serve(g_s), s	4.4	9.5	0.1	1.1	20.1	26.4	0.9	10.1	10.2	18.7	12.3	2.2
Cycle Q Clear(g_c), s	4.4	9.5	0.1	1.1	20.1	26.4	0.9	10.1	10.2	18.7	12.3	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	116	698	580	35	613	897	29	285	297	423	714	591
V/C Ratio(X)	0.78	0.40	0.01	0.66	0.78	0.72	0.63	0.76	0.76	0.92	0.49	0.10
Avail Cap(c_a), veh/h	132	698	580	116	629	911	110	649	676	488	1080	895
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	20.0	17.1	42.5	26.4	13.9	42.7	35.0	35.0	32.5	20.4	17.3
Incr Delay (d2), s/veh	20.1	0.1	0.0	7.7	5.3	2.4	8.0	1.5	1.5	20.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	4.9	0.1	0.6	11.2	11.9	0.5	5.1	5.3	11.5	6.4	1.0
LnGrp Delay(d),s/veh	60.2	20.2	17.1	50.2	31.7	16.3	50.7	36.5	36.5	52.6	20.6	17.3
LnGrp LOS	E	C	B	D	C	B	D	D	D	D	C	B
Approach Vol, veh/h		371			1149			458			798	
Approach Delay, s/veh		30.0			23.4			37.1			36.0	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	37.2	5.9	37.9	10.2	33.2	25.3	18.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.7	30.3	5.4	50.6	6.5	29.5	24.0	32.0
Max Q Clear Time (g_c+I1), s	3.1	11.5	2.9	14.3	6.4	28.4	20.7	12.2
Green Ext Time (p_c), s	0.0	0.5	0.0	0.7	0.0	0.3	0.1	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.1
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	265	6	22	457	669	17	413	11	374	333	63
Future Volume (veh/h)	87	265	6	22	457	669	17	413	11	374	333	63
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	91	276	4	23	476	650	18	430	10	390	347	61
Adj No. of Lanes	1	1	1	0	1	1	1	2	0	2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	945	786	66	683	822	30	592	14	483	447	79
Arrive On Green	0.07	0.51	0.51	0.38	0.38	0.38	0.02	0.17	0.17	0.14	0.29	0.29
Sat Flow, veh/h	1774	1863	1549	39	1796	1580	1774	3534	82	3442	1536	270
Grp Volume(v), veh/h	91	276	4	499	0	650	18	215	225	390	0	408
Grp Sat Flow(s),veh/h/ln	1774	1863	1549	1835	0	1580	1774	1770	1847	1721	0	1806
Q Serve(g_s), s	3.7	6.3	0.1	2.0	0.0	24.5	0.7	8.4	8.4	8.0	0.0	15.1
Cycle Q Clear(g_c), s	3.7	6.3	0.1	16.7	0.0	24.5	0.7	8.4	8.4	8.0	0.0	15.1
Prop In Lane	1.00		1.00	0.05		1.00	1.00		0.04	1.00		0.15
Lane Grp Cap(c), veh/h	116	945	786	749	0	822	30	297	310	483	0	526
V/C Ratio(X)	0.78	0.29	0.01	0.67	0.00	0.79	0.61	0.72	0.73	0.81	0.00	0.78
Avail Cap(c_a), veh/h	163	1147	954	898	0	953	134	775	809	919	0	1138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.6	10.4	8.9	19.2	0.0	14.3	35.7	28.8	28.8	30.4	0.0	23.7
Incr Delay (d2), s/veh	9.5	0.1	0.0	0.9	0.0	3.3	7.2	1.3	1.2	1.2	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	3.2	0.0	8.6	0.0	11.2	0.4	4.2	4.4	3.9	0.0	7.6
LnGrp Delay(d),s/veh	43.1	10.5	8.9	20.0	0.0	17.6	42.8	30.1	30.0	31.7	0.0	24.6
LnGrp LOS	D	B	A	C		B	D	C	C	C		C
Approach Vol, veh/h		371			1149			458			798	
Approach Delay, s/veh		18.5			18.7			30.6			28.1	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		41.6	5.7	25.8	9.3	32.3	14.7	16.7
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s		45.0	5.5	46.0	6.7	33.8	19.5	32.0
Max Q Clear Time (g_c+I1), s		8.3	2.7	17.1	5.7	26.5	10.0	10.4
Green Ext Time (p_c), s		0.6	0.0	0.8	0.0	1.2	0.2	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	23.3
HCM 2010 LOS	C

HCM 2010 AWSC
6: La Salle Ave & E Cotati Ave

05/15/2019

Intersection	
Intersection Delay, s/veh	35.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	714	94	42	1191	9	168	0	53	1	0	2
Future Vol, veh/h	7	714	94	42	1191	9	168	0	53	1	0	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	760	100	45	1267	10	179	0	56	1	0	2
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	48.9	212.3	23.3	12.4
HCM LOS	E	F	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	76%	100%	0%	0%	100%	0%	0%	33%
Vol Thru, %	0%	0%	100%	72%	0%	100%	98%	0%
Vol Right, %	24%	0%	0%	28%	0%	0%	2%	67%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	221	7	476	332	42	794	406	3
LT Vol	168	7	0	0	42	0	0	1
Through Vol	0	0	476	238	0	794	397	0
RT Vol	53	0	0	94	0	0	9	2
Lane Flow Rate	235	7	506	353	45	845	432	3
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.561	0.016	0.991	0.672	0.093	1.636	0.835	0.008
Departure Headway (Hd)	9.305	8.166	7.653	7.449	7.486	6.974	6.958	9.617
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	390	441	476	487	476	524	518	374
Service Time	7.005	5.866	5.353	5.149	5.269	4.756	4.74	7.317
HCM Lane V/C Ratio	0.603	0.016	1.063	0.725	0.095	1.613	0.834	0.008
HCM Control Delay	23.3	11	66.8	24.1	11	313.1	36	12.4
HCM Lane LOS	C	B	F	C	B	F	E	B
HCM 95th-tile Q	3.3	0	13	4.9	0.3	47.2	8.4	0

HCM 2010 Signalized Intersection Summary
6: La Salle Ave & E Cotati Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	714	94	42	1191	9	168	0	53	1	0	2
Future Volume (veh/h)	7	714	94	42	1191	9	168	0	53	1	0	2
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1976	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	7	760	100	45	1267	10	179	0	56	1	0	2
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	330	1489	196	444	1709	13	451	5	74	229	55	237
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.21	0.00	0.21	0.21	0.00	0.21
Sat Flow, veh/h	431	3134	412	639	3598	28	1080	24	345	296	256	1103
Grp Volume(v), veh/h	7	429	431	45	623	654	235	0	0	3	0	0
Grp Sat Flow(s),veh/h/ln	431	1770	1776	639	1770	1857	1450	0	0	1654	0	0
Q Serve(g_s), s	0.4	4.9	4.9	1.5	8.3	8.3	4.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	8.7	4.9	4.9	6.4	8.3	8.3	4.4	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.23	1.00		0.02	0.76		0.24	0.33		0.67
Lane Grp Cap(c), veh/h	330	841	844	444	841	882	530	0	0	521	0	0
V/C Ratio(X)	0.02	0.51	0.51	0.10	0.74	0.74	0.44	0.00	0.00	0.01	0.00	0.00
Avail Cap(c_a), veh/h	1024	3691	3704	1473	3691	3873	1738	0	0	1768	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.7	5.3	5.3	7.5	6.2	6.2	10.7	0.0	0.0	9.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.5	0.5	0.2	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	2.3	2.3	0.3	4.1	4.3	1.8	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	9.7	5.5	5.5	7.5	6.7	6.6	10.9	0.0	0.0	9.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B			A		
Approach Vol, veh/h		867			1322			235			3	
Approach Delay, s/veh		5.5			6.7			10.9			9.0	
Approach LOS		A			A			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		18.3		10.7		18.3		10.7
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		60.5		30.5		60.5		30.5
Max Q Clear Time (g_c+I1), s		10.7		2.0		10.3		6.4
Green Ext Time (p_c), s		2.1		0.0		3.2		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	6.7
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	628	346	259	407	50	456	196	508	67	179	140
Future Volume (veh/h)	117	628	346	259	407	50	456	196	508	67	179	140
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.96	1.00		0.98	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	123	661	318	273	428	39	480	206	440	71	188	51
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	699	336	199	1105	100	235	559	465	163	364	99
Arrive On Green	0.09	0.30	0.30	0.11	0.34	0.34	0.13	0.30	0.30	0.09	0.26	0.26
Sat Flow, veh/h	1774	2298	1106	1774	3270	296	1774	1863	1550	1774	1405	381
Grp Volume(v), veh/h	123	509	470	273	231	236	480	206	440	71	0	239
Grp Sat Flow(s),veh/h/ln	1774	1770	1635	1774	1770	1797	1774	1863	1550	1774	0	1786
Q Serve(g_s), s	6.7	27.5	27.5	11.0	9.7	9.8	13.0	8.5	27.2	3.7	0.0	11.2
Cycle Q Clear(g_c), s	6.7	27.5	27.5	11.0	9.7	9.8	13.0	8.5	27.2	3.7	0.0	11.2
Prop In Lane	1.00		0.68	1.00		0.16	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	157	538	497	199	598	607	235	559	465	163	0	463
V/C Ratio(X)	0.78	0.95	0.95	1.37	0.39	0.39	2.04	0.37	0.95	0.44	0.00	0.52
Avail Cap(c_a), veh/h	235	546	504	199	598	607	235	589	490	163	0	492
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.7	33.3	33.3	43.5	24.7	24.7	42.5	27.0	33.5	42.1	0.0	31.0
Incr Delay (d2), s/veh	4.8	25.3	26.6	195.3	0.2	0.2	482.1	0.2	26.4	0.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	17.2	16.1	16.2	4.8	4.9	37.9	4.4	15.0	1.8	0.0	5.6
LnGrp Delay(d),s/veh	48.5	58.6	59.9	238.8	24.9	24.9	524.6	27.1	59.9	42.8	0.0	31.4
LnGrp LOS	D	E	E	F	C	C	F	C	E	D		C
Approach Vol, veh/h		1102			740			1126			310	
Approach Delay, s/veh		58.0			103.8			252.0			34.0	
Approach LOS		E			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	34.7	17.0	30.3	12.7	38.0	13.0	34.3
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	11.0	30.2	13.0	27.0	13.0	29.2	9.0	31.0
Max Q Clear Time (g_c+I1), s	13.0	29.5	15.0	13.2	8.7	11.8	5.7	29.2
Green Ext Time (p_c), s	0.0	0.2	0.0	0.4	0.0	0.8	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	132.7
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave 04/23/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	628	346	259	407	50	456	196	508	67	179	140
Future Volume (veh/h)	117	628	346	259	407	50	456	196	508	67	179	140
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.96	0.99		0.98	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	123	661	318	273	428	39	480	206	440	71	188	51
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	692	333	277	1249	113	508	606	505	307	227	62
Arrive On Green	0.08	0.30	0.30	0.16	0.38	0.38	0.23	0.33	0.33	0.07	0.16	0.16
Sat Flow, veh/h	1774	2298	1106	1774	3271	297	1774	1863	1551	1774	1403	380
Grp Volume(v), veh/h	123	509	470	273	231	236	480	206	440	71	0	239
Grp Sat Flow(s),veh/h/ln	1774	1770	1634	1774	1770	1798	1774	1863	1551	1774	0	1783
Q Serve(g_s), s	8.7	36.1	36.1	19.6	11.8	12.0	27.9	10.7	34.2	4.1	0.0	16.6
Cycle Q Clear(g_c), s	8.7	36.1	36.1	19.6	11.8	12.0	27.9	10.7	34.2	4.1	0.0	16.6
Prop In Lane	1.00		0.68	1.00		0.16	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	147	532	492	277	676	687	508	606	505	307	0	289
V/C Ratio(X)	0.83	0.96	0.96	0.98	0.34	0.34	0.95	0.34	0.87	0.23	0.00	0.83
Avail Cap(c_a), veh/h	236	542	501	277	676	687	509	699	582	307	0	376
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.8	43.9	43.9	53.8	28.1	28.1	32.2	32.7	40.6	39.3	0.0	51.9
Incr Delay (d2), s/veh	6.8	27.3	28.7	49.5	0.1	0.1	26.5	0.1	11.2	0.1	0.0	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	21.7	20.2	13.4	5.8	5.9	17.3	5.5	16.1	2.0	0.0	8.9
LnGrp Delay(d),s/veh	64.6	71.2	72.6	103.3	28.2	28.2	58.7	32.8	51.8	39.4	0.0	60.7
LnGrp LOS	E	E	E	F	C	C	E	C	D	D		E
Approach Vol, veh/h		1102			740			1126			310	
Approach Delay, s/veh		71.1			55.9			51.3			55.9	
Approach LOS		E			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	43.4	33.9	25.6	14.6	53.8	13.0	46.6
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	20.0	39.2	30.0	27.0	17.0	43.2	9.0	48.0
Max Q Clear Time (g_c+I1), s	21.6	38.1	29.9	18.6	10.7	14.0	6.1	36.2
Green Ext Time (p_c), s	0.0	0.4	0.0	0.3	0.0	0.9	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	59.4
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave 05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	628	346	259	407	50	456	196	508	67	179	140
Future Volume (veh/h)	117	628	346	259	407	50	456	196	508	67	179	140
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.96	1.00		0.98	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	123	661	318	273	428	39	480	206	440	71	188	51
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	416	868	378	338	899	82	527	569	474	446	346	94
Arrive On Green	0.10	0.25	0.25	0.12	0.28	0.28	0.17	0.31	0.31	0.11	0.25	0.25
Sat Flow, veh/h	1774	3539	1539	1774	3269	296	1774	1863	1550	1774	1404	381
Grp Volume(v), veh/h	123	661	318	273	231	236	480	206	440	71	0	239
Grp Sat Flow(s),veh/h/ln	1774	1770	1539	1774	1770	1795	1774	1863	1550	1774	0	1785
Q Serve(g_s), s	4.1	14.6	16.5	9.7	9.1	9.2	14.0	7.3	23.2	2.3	0.0	9.8
Cycle Q Clear(g_c), s	4.1	14.6	16.5	9.7	9.1	9.2	14.0	7.3	23.2	2.3	0.0	9.8
Prop In Lane	1.00		1.00	1.00		0.17	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	416	868	378	338	487	494	527	569	474	446	0	439
V/C Ratio(X)	0.30	0.76	0.84	0.81	0.47	0.48	0.91	0.36	0.93	0.16	0.00	0.54
Avail Cap(c_a), veh/h	426	1270	552	338	677	687	527	708	590	446	0	573
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.6	29.5	30.2	22.2	25.4	25.5	22.1	22.8	28.3	18.4	0.0	27.6
Incr Delay (d2), s/veh	0.1	0.8	5.2	12.7	0.3	0.3	19.5	0.1	17.3	0.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	7.2	7.6	5.9	4.5	4.6	7.1	3.7	12.1	1.1	0.0	4.9
LnGrp Delay(d),s/veh	19.8	30.2	35.4	34.9	25.7	25.7	41.7	23.0	45.6	18.4	0.0	28.0
LnGrp LOS	B	C	D	C	C	C	D	C	D	B		C
Approach Vol, veh/h		1102			740			1126			310	
Approach Delay, s/veh		30.6			29.1			39.8			25.8	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	25.5	18.0	25.6	12.5	28.1	13.0	30.6
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	10.0	30.2	14.0	27.0	9.0	32.2	9.0	32.0
Max Q Clear Time (g_c+I1), s	11.7	18.5	16.0	11.8	6.1	11.2	4.3	25.2
Green Ext Time (p_c), s	0.0	1.6	0.0	0.4	0.0	0.9	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	32.9
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	586	562	41	10	183	275	84	239	23	358	198	419
Future Volume (veh/h)	586	562	41	10	183	275	84	239	23	358	198	419
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	3	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.94	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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	617	592	30	11	193	223	88	252	12	377	208	315
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	540	1555	837	42	562	561	185	516	24	354	458	864
Arrive On Green	0.30	0.44	0.44	0.02	0.16	0.16	0.10	0.15	0.15	0.20	0.25	0.25
Sat Flow, veh/h	1774	3539	1529	1774	3539	1547	1774	3430	162	1774	1863	1555
Grp Volume(v), veh/h	617	592	30	11	193	223	88	129	135	377	208	315
Grp Sat Flow(s),veh/h/ln	1774	1770	1529	1774	1770	1547	1774	1770	1823	1774	1863	1555
Q Serve(g_s), s	29.0	10.7	0.9	0.6	4.6	10.3	4.5	6.4	6.5	19.0	9.0	10.9
Cycle Q Clear(g_c), s	29.0	10.7	0.9	0.6	4.6	10.3	4.5	6.4	6.5	19.0	9.0	10.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	540	1555	837	42	562	561	185	266	274	354	458	864
V/C Ratio(X)	1.14	0.38	0.04	0.26	0.34	0.40	0.48	0.49	0.49	1.07	0.45	0.36
Avail Cap(c_a), veh/h	540	2051	1051	168	1308	888	242	539	555	354	684	1053
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.1	18.0	10.1	45.7	35.7	22.9	40.2	37.1	37.1	38.1	30.5	12.1
Incr Delay (d2), s/veh	84.4	0.1	0.0	1.2	0.1	0.2	0.7	0.5	0.5	66.3	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.2	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.8	5.3	0.4	0.3	2.3	4.4	2.2	3.2	3.3	18.8	4.7	4.6
LnGrp Delay(d),s/veh	117.5	18.0	10.1	46.9	35.8	23.1	40.9	37.6	37.6	132.6	30.8	12.2
LnGrp LOS	F	B	B	D	D	C	D	D	D	F	C	B
Approach Vol, veh/h		1239			427			352			900	
Approach Delay, s/veh		67.4			29.4			38.4			66.9	
Approach LOS		E			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	46.8	13.9	28.3	33.0	20.0	23.0	19.2
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	9.0	55.2	13.0	35.0	29.0	35.2	19.0	29.0
Max Q Clear Time (g_c+I1), s	2.6	12.7	6.5	12.9	31.0	12.3	21.0	8.5
Green Ext Time (p_c), s	0.0	1.5	0.0	0.5	0.0	0.5	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	58.2
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	586	562	41	10	183	275	84	239	23	358	198	419
Future Volume (veh/h)	586	562	41	10	183	275	84	239	23	358	198	419
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	3	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.95	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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	617	592	30	11	193	223	88	252	12	377	208	315
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	643	1791	938	42	592	463	182	541	26	444	343	860
Arrive On Green	0.36	0.51	0.51	0.02	0.17	0.17	0.10	0.16	0.16	0.13	0.18	0.18
Sat Flow, veh/h	1774	3539	1532	1774	3539	1548	1774	3430	162	3442	1863	1552
Grp Volume(v), veh/h	617	592	30	11	193	223	88	129	135	377	208	315
Grp Sat Flow(s),veh/h/ln	1774	1770	1532	1774	1770	1548	1774	1770	1823	1721	1863	1552
Q Serve(g_s), s	33.0	9.6	0.8	0.6	4.7	11.5	4.5	6.4	6.5	10.4	10.0	11.2
Cycle Q Clear(g_c), s	33.0	9.6	0.8	0.6	4.7	11.5	4.5	6.4	6.5	10.4	10.0	11.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	643	1791	938	42	592	463	182	279	288	444	343	860
V/C Ratio(X)	0.96	0.33	0.03	0.26	0.33	0.48	0.48	0.46	0.47	0.85	0.61	0.37
Avail Cap(c_a), veh/h	767	2449	1223	164	1247	748	238	529	545	461	556	1038
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	14.2	7.6	46.5	35.6	28.1	41.1	37.1	37.2	41.5	36.4	12.5
Incr Delay (d2), s/veh	20.0	0.0	0.0	1.2	0.1	0.3	0.7	0.4	0.4	12.8	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.7	4.7	0.3	0.3	2.3	5.0	2.3	3.2	3.3	6.0	5.2	4.7
LnGrp Delay(d),s/veh	50.3	14.3	7.6	47.7	35.7	28.4	41.8	37.6	37.6	56.5	37.0	12.6
LnGrp LOS	D	B	A	D	D	C	D	D	D	E	D	B
Approach Vol, veh/h		1239			427			352			900	
Approach Delay, s/veh		32.0			32.2			38.7			36.6	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	54.0	14.0	22.8	39.2	21.1	16.4	20.3
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	9.0	67.2	13.0	29.0	42.0	34.2	13.0	29.0
Max Q Clear Time (g_c+I1), s	2.6	11.6	6.5	13.2	35.0	13.5	12.4	8.5
Green Ext Time (p_c), s	0.0	1.5	0.0	0.5	0.2	0.5	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	34.3
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	675	70	127	355	13	231	53	278	11	11	32
Future Volume (veh/h)	155	675	70	127	355	13	231	53	278	11	11	32
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	178	776	58	146	408	7	266	61	177	13	13	13
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	227	1287	96	240	1401	24	466	514	427	252	227	634
Arrive On Green	0.13	0.39	0.39	0.14	0.39	0.39	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1774	3335	249	1774	3561	61	1363	1863	1547	631	825	1564
Grp Volume(v), veh/h	178	412	422	146	203	212	266	61	177	26	0	13
Grp Sat Flow(s),veh/h/ln	1774	1770	1815	1774	1770	1852	1363	1863	1547	1455	0	1564
Q Serve(g_s), s	6.8	12.9	12.9	5.4	5.4	5.5	12.4	1.7	6.5	0.0	0.0	0.3
Cycle Q Clear(g_c), s	6.8	12.9	12.9	5.4	5.4	5.5	13.1	1.7	6.5	0.7	0.0	0.3
Prop In Lane	1.00		0.14	1.00		0.03	1.00		1.00	0.50		1.00
Lane Grp Cap(c), veh/h	227	683	700	240	697	729	466	514	427	479	0	634
V/C Ratio(X)	0.79	0.60	0.60	0.61	0.29	0.29	0.57	0.12	0.41	0.05	0.00	0.02
Avail Cap(c_a), veh/h	638	1276	1308	383	1021	1069	694	826	686	715	0	896
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.4	17.1	17.1	28.3	14.4	14.4	23.3	18.8	20.6	18.5	0.0	12.5
Incr Delay (d2), s/veh	5.9	1.8	1.8	2.5	0.5	0.5	2.4	0.2	1.4	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	6.6	6.8	2.8	2.7	2.9	5.0	0.9	2.9	0.4	0.0	0.2
LnGrp Delay(d),s/veh	35.3	18.9	18.9	30.8	14.9	14.9	25.6	19.1	22.0	18.6	0.0	12.5
LnGrp LOS	D	B	B	C	B	B	C	B	C	B		B
Approach Vol, veh/h		1012			561			504			39	
Approach Delay, s/veh		21.8			19.0			23.5			16.6	
Approach LOS		C			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.4	31.7		24.4	12.9	32.2		24.4
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		* 5.2
Max Green Setting (Gmax), s	15.0	50.1		* 31	25.0	40.1		* 31
Max Q Clear Time (g_c+I1), s	17.4	14.9		2.7	8.8	7.5		15.1
Green Ext Time (p_c), s	0.2	11.9		0.3	0.4	5.0		3.4

Intersection Summary	
HCM 2010 Ctrl Delay	21.4
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	675	70	127	355	13	231	53	278	11	11	32
Future Volume (veh/h)	155	675	70	127	355	13	231	53	278	11	11	32
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	178	776	58	146	408	7	310	0	177	13	13	13
Adj No. of Lanes	1	2	0	1	2	0	2	0	1	0	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	1097	82	225	1178	20	754	0	529	67	67	312
Arrive On Green	0.13	0.33	0.33	0.13	0.33	0.33	0.21	0.00	0.21	0.07	0.07	0.07
Sat Flow, veh/h	1774	3335	249	1774	3561	61	3548	0	1542	909	909	1544
Grp Volume(v), veh/h	178	412	422	146	203	212	310	0	177	26	0	13
Grp Sat Flow(s),veh/h/ln	1774	1770	1814	1774	1770	1852	1774	0	1542	1817	0	1544
Q Serve(g_s), s	7.3	15.3	15.3	5.9	6.5	6.5	5.7	0.0	6.4	1.0	0.0	0.5
Cycle Q Clear(g_c), s	7.3	15.3	15.3	5.9	6.5	6.5	5.7	0.0	6.4	1.0	0.0	0.5
Prop In Lane	1.00		0.14	1.00		0.03	1.00		1.00	0.50		1.00
Lane Grp Cap(c), veh/h	222	582	597	225	586	613	754	0	529	135	0	312
V/C Ratio(X)	0.80	0.71	0.71	0.65	0.35	0.35	0.41	0.00	0.33	0.19	0.00	0.04
Avail Cap(c_a), veh/h	426	748	767	260	586	613	1325	0	777	242	0	404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.9	22.0	22.0	31.1	19.0	19.0	25.5	0.0	18.5	32.6	0.0	24.2
Incr Delay (d2), s/veh	6.6	3.8	3.7	4.5	0.8	0.7	0.8	0.0	0.8	1.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	8.0	8.2	3.2	3.3	3.4	2.8	0.0	2.8	0.6	0.0	0.2
LnGrp Delay(d),s/veh	38.5	25.8	25.7	35.6	19.7	19.7	26.2	0.0	19.3	34.1	0.0	24.4
LnGrp LOS	D	C	C	D	B	B	C		B	C		C
Approach Vol, veh/h		1012			561			487			39	
Approach Delay, s/veh		28.0			23.8			23.7			30.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.5	29.6		10.8	13.4	29.7		21.1
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		5.2
Max Green Setting (Gmax), s	11.0	31.7		* 10	18.0	24.7		28.0
Max Q Clear Time (g_c+I1), s	17.9	17.3		3.0	9.3	8.5		8.4
Green Ext Time (p_c), s	0.1	7.4		0.1	0.3	3.8		3.6

Intersection Summary	
HCM 2010 Ctrl Delay	25.9
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

05/15/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	446	223	455	861	568	276
Future Volume (veh/h)	446	223	455	861	568	276
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1976	1863	1863	1863	1863
Adj Flow Rate, veh/h	485	138	495	936	617	239
Adj No. of Lanes	0	0	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	432	123	452	1126	584	497
Arrive On Green	0.31	0.31	0.25	0.60	0.31	0.31
Sat Flow, veh/h	1397	397	1774	1863	1863	1583
Grp Volume(v), veh/h	624	0	495	936	617	239
Grp Sat Flow(s),veh/h/ln	1797	0	1774	1863	1863	1583
Q Serve(g_s), s	34.0	0.0	28.0	43.9	34.5	13.4
Cycle Q Clear(g_c), s	34.0	0.0	28.0	43.9	34.5	13.4
Prop In Lane	0.78	0.22	1.00			1.00
Lane Grp Cap(c), veh/h	556	0	452	1126	584	497
V/C Ratio(X)	1.12	0.00	1.10	0.83	1.06	0.48
Avail Cap(c_a), veh/h	556	0	452	1126	584	497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	41.0	17.3	37.8	30.5
Incr Delay (d2), s/veh	76.8	0.0	71.0	5.1	52.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.7	0.0	22.6	24.0	26.3	5.9
LnGrp Delay(d),s/veh	114.8	0.0	112.0	22.4	90.7	30.8
LnGrp LOS	F		F	C	F	C
Approach Vol, veh/h	624			1431	856	
Approach Delay, s/veh	114.8			53.4	73.9	
Approach LOS	F			D	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		72.0		38.0	32.0	40.0		
Change Period (Y+Rc), s		5.5		4.0	4.0	5.5		
Max Green Setting (Gmax), s		66.5		34.0	28.0	34.5		
Max Q Clear Time (g_c+I1), s		45.9		36.0	30.0	36.5		
Green Ext Time (p_c), s		2.0		0.0	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	72.6
HCM 2010 LOS	E

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

05/16/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	446	223	455	861	568	276
Future Volume (veh/h)	446	223	455	861	568	276
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1937	1863	1863	1863	1863
Adj Flow Rate, veh/h	485	138	495	936	617	239
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	467	920	542	1314	677	976
Arrive On Green	0.25	0.25	0.31	0.71	0.36	0.36
Sat Flow, veh/h	1845	1647	1774	1863	1863	1583
Grp Volume(v), veh/h	485	138	495	936	617	239
Grp Sat Flow(s),veh/h/ln	1845	1647	1774	1863	1863	1583
Q Serve(g_s), s	38.0	0.0	40.3	44.6	47.3	10.2
Cycle Q Clear(g_c), s	38.0	0.0	40.3	44.6	47.3	10.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	467	920	542	1314	677	976
V/C Ratio(X)	1.04	0.15	0.91	0.71	0.91	0.24
Avail Cap(c_a), veh/h	467	920	542	1314	677	976
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.0	15.9	50.2	13.1	45.5	13.0
Incr Delay (d2), s/veh	51.7	0.0	19.6	3.3	18.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.1	5.7	22.7	23.8	27.8	7.6
LnGrp Delay(d),s/veh	107.7	16.0	69.8	16.4	64.1	13.6
LnGrp LOS	F	B	E	B	E	B
Approach Vol, veh/h	623			1431	856	
Approach Delay, s/veh	87.4			34.8	50.0	
Approach LOS	F			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		111.3		42.0	51.3	60.0		
Change Period (Y+Rc), s		5.5		4.0	5.5	* 5.5		
Max Green Setting (Gmax), s		102.5		38.0	44.0	* 55		
Max Q Clear Time (g_c+I1), s		46.6		40.0	42.3	49.3		
Green Ext Time (p_c), s		2.0		0.0	0.2	0.8		

Intersection Summary	
HCM 2010 Ctrl Delay	50.6
HCM 2010 LOS	D

Notes

Intersection	
Intersection Delay, s/veh	18.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	331	174	37	210	29	219	33	44	66	16	13
Future Vol, veh/h	9	331	174	37	210	29	219	33	44	66	16	13
Peak Hour Factor	0.87	0.87	0.92	0.92	0.87	0.87	0.92	0.92	0.92	0.87	0.92	0.87
Heavy Vehicles, %	0	2	2	2	2	0	2	2	2	0	2	0
Mvmt Flow	10	380	189	40	241	33	238	36	48	76	17	15
Number of Lanes	1	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	3
HCM Control Delay	17.1	15	25.4	13.7
HCM LOS	C	B	D	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	74%	100%	0%	0%	26%	0%	69%
Vol Thru, %	11%	0%	100%	39%	74%	78%	17%
Vol Right, %	15%	0%	0%	61%	0%	22%	14%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	296	9	221	284	142	134	95
LT Vol	219	9	0	0	37	0	66
Through Vol	33	0	221	110	105	105	16
RT Vol	44	0	0	174	0	29	13
Lane Flow Rate	322	10	254	316	161	154	108
Geometry Grp	7	7	7	7	8	8	7
Degree of Util (X)	0.683	0.021	0.492	0.574	0.362	0.334	0.248
Departure Headway (Hd)	7.637	7.461	6.983	6.543	8.088	7.797	8.238
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	473	479	515	550	444	461	435
Service Time	5.389	5.214	4.736	4.296	5.853	5.561	6.004
HCM Lane V/C Ratio	0.681	0.021	0.493	0.575	0.363	0.334	0.248
HCM Control Delay	25.4	10.4	16.4	17.8	15.4	14.5	13.7
HCM Lane LOS	D	B	C	C	C	B	B
HCM 95th-tile Q	5.1	0.1	2.7	3.6	1.6	1.4	1

Intersection	
Intersection Delay, s/veh	24
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	331	174	37	210	29	219	33	44	66	16	13
Future Vol, veh/h	9	331	174	37	210	29	219	33	44	66	16	13
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	2	2	2	2	0	2	2	2	0	2	0
Mvmt Flow	10	380	200	43	241	33	252	38	51	76	18	15
Number of Lanes	1	1	1	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	3
HCM Control Delay	28	22.4	21.2	15.7
HCM LOS	D	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	69%
Vol Thru, %	0%	43%	0%	100%	0%	0%	88%	17%
Vol Right, %	0%	57%	0%	0%	100%	0%	12%	14%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	219	77	9	331	174	37	239	95
LT Vol	219	0	9	0	0	37	0	66
Through Vol	0	33	0	331	0	0	210	16
RT Vol	0	44	0	0	174	0	29	13
Lane Flow Rate	252	89	10	380	200	43	275	109
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.608	0.191	0.023	0.809	0.385	0.105	0.629	0.284
Departure Headway (Hd)	8.812	7.891	8.235	7.756	7.037	8.854	8.249	9.35
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	413	458	437	468	514	407	440	387
Service Time	6.512	5.591	5.935	5.456	4.737	6.554	5.949	7.065
HCM Lane V/C Ratio	0.61	0.194	0.023	0.812	0.389	0.106	0.625	0.282
HCM Control Delay	24.3	12.4	11.1	35.8	14.1	12.6	23.9	15.7
HCM Lane LOS	C	B	B	E	B	B	C	C
HCM 95th-tile Q	3.9	0.7	0.1	7.6	1.8	0.3	4.2	1.2

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	224	191	70	166	11	72	13	35	26	24	38
Future Vol, veh/h	27	224	191	70	166	11	72	13	35	26	24	38
Conflicting Peds, #/hr	0	0	53	0	0	6	0	0	24	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	31	257	220	80	191	13	83	15	40	30	28	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	210	0	0	530	0	0	755	852	316	586	956	111
Stage 1	-	-	-	-	-	-	482	482	-	364	364	-
Stage 2	-	-	-	-	-	-	273	370	-	222	592	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	1365	-	-	1040	-	-	299	297	683	396	258	924
Stage 1	-	-	-	-	-	-	537	554	-	630	625	-
Stage 2	-	-	-	-	-	-	712	621	-	763	495	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1357	-	-	988	-	-	225	252	634	318	219	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	225	252	-	318	219	-
Stage 1	-	-	-	-	-	-	498	514	-	612	571	-
Stage 2	-	-	-	-	-	-	591	567	-	662	459	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	2.5	29.6	18
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	281	1357	-	-	988	-	-	378
HCM Lane V/C Ratio	0.491	0.023	-	-	0.081	-	-	0.268
HCM Control Delay (s)	29.6	7.7	-	-	9	-	-	18
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	2.5	0.1	-	-	0.3	-	-	1.1

Intersection	
Intersection Delay, s/veh	15.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	224	191	70	166	11	72	13	35	26	24	38
Future Vol, veh/h	27	224	191	70	166	11	72	13	35	26	24	38
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	31	257	220	80	191	13	83	15	40	30	28	44
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	19.3	11.1	11	10.4
HCM LOS	C	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	60%	100%	0%	100%	0%	30%
Vol Thru, %	11%	0%	54%	0%	94%	27%
Vol Right, %	29%	0%	46%	0%	6%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	27	415	70	177	88
LT Vol	72	27	0	70	0	26
Through Vol	13	0	224	0	166	24
RT Vol	35	0	191	0	11	38
Lane Flow Rate	138	31	477	80	203	101
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.234	0.053	0.708	0.143	0.331	0.17
Departure Headway (Hd)	6.096	6.156	5.342	6.39	5.856	6.049
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	588	582	677	561	612	591
Service Time	4.152	3.893	3.078	4.134	3.6	4.111
HCM Lane V/C Ratio	0.235	0.053	0.705	0.143	0.332	0.171
HCM Control Delay	11	9.2	20	10.2	11.5	10.4
HCM Lane LOS	B	A	C	B	B	B
HCM 95th-tile Q	0.9	0.2	5.9	0.5	1.4	0.6

HCM 2010 Roundabout
13: Camino Colegio & Manchester Ave 04/23/2019

Intersection				
Intersection Delay, s/veh	8.4			
Intersection LOS	A			

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	514	284	138	103
Demand Flow Rate, veh/h	521	289	139	103
Vehicles Circulating, veh/h	139	131	329	360
Vehicles Exiting, veh/h	324	337	331	60
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	3	24	53	6
Ped Cap Adj	1.000	0.997	0.993	0.999
Approach Delay, s/veh	10.5	6.7	6.3	5.9
Approach LOS	B	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	521	289	139	103
Cap Entry Lane, veh/h	983	991	813	788
Entry HV Adj Factor	0.986	0.983	0.992	0.997
Flow Entry, veh/h	514	284	138	103
Cap Entry, veh/h	969	971	801	786
V/C Ratio	0.530	0.293	0.172	0.131
Control Delay, s/veh	10.5	6.7	6.3	5.9
LOS	B	A	A	A
95th %tile Queue, veh	3	1	1	0

HCM 2010 TWSC
14: Camino Colegio & Mainsail Dr 05/15/2019

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	264	10	11	195	7	33	0	25	29	0	10
Future Vol, veh/h	10	264	10	11	195	7	33	0	25	29	0	10
Conflicting Peds, #/hr	0	0	0	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	2	2	2	2	2	2	2	2	1	2	1
Mvmt Flow	11	287	11	12	212	8	36	0	27	32	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	223	0	0	298	0	0	445	562	149	409	563	113
Stage 1	-	-	-	-	-	-	315	315	-	243	243	-
Stage 2	-	-	-	-	-	-	130	247	-	166	320	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.52	6.54	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.51	4.02	3.31
Pot Cap-1 Maneuver	1350	-	-	1260	-	-	497	434	871	529	434	922
Stage 1	-	-	-	-	-	-	671	654	-	742	703	-
Stage 2	-	-	-	-	-	-	860	701	-	822	651	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1346	-	-	1260	-	-	484	424	871	504	424	919
Mov Cap-2 Maneuver	-	-	-	-	-	-	484	424	-	504	424	-
Stage 1	-	-	-	-	-	-	666	649	-	734	693	-
Stage 2	-	-	-	-	-	-	840	691	-	790	646	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4	11.7	11.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	599	1346	-	-	1260	-	-	570
HCM Lane V/C Ratio	0.105	0.008	-	-	0.009	-	-	0.074
HCM Control Delay (s)	11.7	7.7	-	-	7.9	0	-	11.8
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.2

HCM 2010 TWSC
14: Camino Colegio & Mainsail Dr 05/16/2019

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	264	10	11	195	7	33	0	25	29	0	10
Future Vol, veh/h	10	264	10	11	195	7	33	0	25	29	0	10
Conflicting Peds, #/hr	0	0	0	0	0	3	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	140	-	-	160	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	2	2	2	2	2	2	2	2	1	2	1
Mvmt Flow	11	287	11	12	212	8	36	0	27	32	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	223	0	0	298	0	0	561	562	293	571	563	219
Stage 1	-	-	-	-	-	-	315	315	-	243	243	-
Stage 2	-	-	-	-	-	-	246	247	-	328	320	-
Critical Hdwy	4.11	-	-	4.12	-	-	7.12	6.52	6.22	7.11	6.52	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.11	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.11	5.52	-
Follow-up Hdwy	2.209	-	-	2.218	-	-	3.518	4.018	3.318	3.509	4.018	3.309
Pot Cap-1 Maneuver	1352	-	-	1263	-	-	438	436	746	433	435	823
Stage 1	-	-	-	-	-	-	696	656	-	763	705	-
Stage 2	-	-	-	-	-	-	758	702	-	687	652	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1348	-	-	1263	-	-	427	427	746	410	426	821
Mov Cap-2 Maneuver	-	-	-	-	-	-	427	427	-	410	426	-
Stage 1	-	-	-	-	-	-	690	651	-	755	696	-
Stage 2	-	-	-	-	-	-	741	693	-	657	647	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4	12.8	13.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	523	1348	-	-	1263	-	-	470
HCM Lane V/C Ratio	0.121	0.008	-	-	0.009	-	-	0.09
HCM Control Delay (s)	12.8	7.7	-	-	7.9	-	-	13.4
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.3

HCM 2010 TWSC
15: Bodway Pkwy & Camino Colegio 05/15/2019

Intersection						
Int Delay, s/veh	6.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	97	218	113	142	167	91
Future Vol, veh/h	97	218	113	142	167	91
Conflicting Peds, #/hr	0	4	0	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	140	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	107	240	124	156	184	100

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	645	245	291	0	-	0
Stage 1	241	-	-	-	-	-
Stage 2	404	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	437	794	1271	-	-	-
Stage 1	799	-	-	-	-	-
Stage 2	674	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	388	786	1263	-	-	-
Mov Cap-2 Maneuver	388	-	-	-	-	-
Stage 1	716	-	-	-	-	-
Stage 2	669	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.5	3.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1263	-	388	786	-	-
HCM Lane V/C Ratio	0.098	-	0.275	0.305	-	-
HCM Control Delay (s)	8.2	-	17.8	11.6	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1.1	1.3	-	-

HCM 2010 TWSC
16: Bodway Pkwy & Waterside Ln 05/15/2019

Intersection												
Int Delay, s/veh	0.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	9	0	0	51	0	198	5	0	378	2
Future Vol, veh/h	0	0	9	0	0	51	0	198	5	0	378	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	87	92	87	92	87	87	87	87	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	0	0	10	0	0	59	0	228	6	0	434	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	435	-	-	233	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	-	-	6.2	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	621	0	0	811	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	621	-	-	809	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	9.8	0	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	621	809	-	-
HCM Lane V/C Ratio	-	-	0.016	0.072	-	-
HCM Control Delay (s)	-	-	10.9	9.8	-	-
HCM Lane LOS	-	-	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.2	-	-

HCM 2010 TWSC
17: Bodway Pkwy & Wisdom Ln 05/15/2019

Intersection												
Int Delay, s/veh	1.8											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	18	17	0	51	6	146	10	19	375	4
Future Vol, veh/h	3	0	18	17	0	51	6	146	10	19	375	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	50	-	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	87	92	87	92	87	87	87	87	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	3	0	20	20	0	59	7	168	11	22	431	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	694	672	433	677	669	176	435	0	0	181	0	0
Stage 1	477	477	-	190	190	-	-	-	-	-	-	-
Stage 2	217	195	-	487	479	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.52	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4.018	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	357	377	623	369	379	872	1125	-	-	1407	-	-
Stage 1	569	556	-	816	743	-	-	-	-	-	-	-
Stage 2	785	739	-	566	555	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	327	368	623	351	370	870	1125	-	-	1404	-	-
Mov Cap-2 Maneuver	327	368	-	351	370	-	-	-	-	-	-	-
Stage 1	565	547	-	809	736	-	-	-	-	-	-	-
Stage 2	727	732	-	540	546	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.8	11	0.3	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1125	-	-	552	351	870	1404	-	-
HCM Lane V/C Ratio	0.006	-	-	0.041	0.056	0.067	0.016	-	-
HCM Control Delay (s)	8.2	0	-	11.8	15.9	9.4	7.6	-	-
HCM Lane LOS	A	A	-	B	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.2	0	-	-

HCM 2010 Roundabout
18: SOMO Ave/Valley House Dr & Bodway Pkwy

05/15/2019

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	197	367	58	462
Demand Flow Rate, veh/h	202	375	59	471
Vehicles Circulating, veh/h	442	55	593	248
Vehicles Exiting, veh/h	277	597	51	181
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	2	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.4	7.0	7.0	11.5
Approach LOS	A	A	A	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	202	375	59	471
Cap Entry Lane, veh/h	726	1069	624	882
Entry HV Adj Factor	0.977	0.980	0.977	0.981
Flow Entry, veh/h	197	367	58	462
Cap Entry, veh/h	709	1048	610	865
V/C Ratio	0.278	0.351	0.094	0.534
Control Delay, s/veh	8.4	7.0	7.0	11.5
LOS	A	A	A	B
95th %tile Queue, veh	1	2	0	3

HCM 2010 Signalized Intersection Summary
19: Petaluma Hill Rd & Valley House Dr

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	0	434	1	0	2	329	945	4	9	844	101
Future Volume (veh/h)	166	0	434	1	0	2	329	945	4	9	844	101
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	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	182	0	233	1	0	0	362	1038	4	10	927	107
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	0	268	3	0	0	287	1163	4	17	885	751
Arrive On Green	0.17	0.00	0.17	0.00	0.00	0.00	0.16	0.63	0.63	0.01	0.48	0.48
Sat Flow, veh/h	1774	0	1583	1774	0	0	1774	1854	7	1774	1863	1582
Grp Volume(v), veh/h	182	0	233	1	0	0	362	0	1042	10	927	107
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	0	1774	0	1861	1774	1863	1582
Q Serve(g_s), s	9.4	0.0	14.2	0.1	0.0	0.0	16.0	0.0	46.9	0.6	47.0	3.8
Cycle Q Clear(g_c), s	9.4	0.0	14.2	0.1	0.0	0.0	16.0	0.0	46.9	0.6	47.0	3.8
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	301	0	268	3	0	0	287	0	1167	17	885	751
V/C Ratio(X)	0.61	0.00	0.87	0.34	0.00	0.00	1.26	0.00	0.89	0.58	1.05	0.14
Avail Cap(c_a), veh/h	395	0	352	108	0	0	287	0	1167	72	885	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	40.0	49.3	0.0	0.0	41.5	0.0	15.6	48.8	26.0	14.6
Incr Delay (d2), s/veh	0.7	0.0	13.6	44.8	0.0	0.0	142.7	0.0	8.7	10.9	43.5	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	4.7	0.0	7.2	0.1	0.0	0.0	19.2	0.0	26.6	0.3	34.8	1.6
LnGrp Delay(d),s/veh	38.8	0.0	53.6	94.2	0.0	0.0	184.2	0.0	24.3	59.7	69.4	14.7
LnGrp LOS	D		D	F			F		C	E	F	B
Approach Vol, veh/h		415			1			1404			1044	
Approach Delay, s/veh		47.1			94.1			65.6			63.7	
Approach LOS		D			F			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.0	67.5		20.8	20.0	52.5		5.7
Change Period (Y+Rc), s	4.0	5.5		4.0	4.0	5.5		5.5
Max Green Setting (Gmax), s	4.6	59.0		22.0	16.0	47.0		6.0
Max Q Clear Time (g_c+I1), s	12.6	48.9		16.2	18.0	49.0		2.1
Green Ext Time (p_c), s	0.0	2.0		0.6	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	62.2
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
19: Petaluma Hill Rd & Valley House Dr

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	0	434	1	0	2	329	945	4	9	844	101
Future Volume (veh/h)	166	0	434	1	0	2	329	945	4	9	844	101
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	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	182	0	233	1	0	0	362	1038	4	10	927	107
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	0	524	3	0	0	355	1224	5	125	1007	1063
Arrive On Green	0.13	0.00	0.13	0.00	0.00	0.00	0.20	0.66	0.66	0.07	0.54	0.54
Sat Flow, veh/h	1774	0	1583	1774	0	0	1774	1854	7	1774	1863	1582
Grp Volume(v), veh/h	182	0	233	1	0	0	362	0	1042	10	927	107
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	0	1774	0	1861	1774	1863	1582
Q Serve(g_s), s	14.9	0.0	17.3	0.1	0.0	0.0	30.0	0.0	64.8	0.8	68.3	3.6
Cycle Q Clear(g_c), s	14.9	0.0	17.3	0.1	0.0	0.0	30.0	0.0	64.8	0.8	68.3	3.6
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	232	0	524	3	0	0	355	0	1229	125	1007	1063
V/C Ratio(X)	0.78	0.00	0.44	0.35	0.00	0.00	1.02	0.00	0.85	0.08	0.92	0.10
Avail Cap(c_a), veh/h	260	0	549	71	0	0	355	0	1229	125	1007	1063
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.22	0.00	0.22	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	0.0	39.4	74.8	0.0	0.0	60.0	0.0	19.7	65.1	31.5	8.7
Incr Delay (d2), s/veh	11.2	0.0	0.2	45.5	0.0	0.0	27.8	0.0	1.8	0.1	14.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	0.0	7.6	0.1	0.0	0.0	17.4	0.0	33.6	0.4	39.1	2.2
LnGrp Delay(d),s/veh	74.3	0.0	39.6	120.3	0.0	0.0	87.9	0.0	21.5	65.2	46.2	8.9
LnGrp LOS	E		D	F			F		C	E	D	A
Approach Vol, veh/h		415			1			1404			1044	
Approach Delay, s/veh		54.8			120.3			38.6			42.5	
Approach LOS		D			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.1	104.5		23.6	34.0	86.6		5.7
Change Period (Y+Rc), s	5.5	* 5.5		4.0	4.0	5.5		5.5
Max Green Setting (Gmax), s	4.6	* 99		22.0	30.0	73.0		6.0
Max Q Clear Time (g_c+I1), s	12.8	66.8		19.3	32.0	70.3		2.1
Green Ext Time (p_c), s	0.0	2.4		0.3	0.0	0.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	42.4
HCM 2010 LOS	D

Notes

HCM 2010 TWSC
20: Old Redwood Hwy & E Railroad Ave

05/15/2019

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	44	34	9	47	33	37	284	15	34	600	43
Future Vol, veh/h	26	44	34	9	47	33	37	284	15	34	600	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	49	38	10	53	37	42	319	17	38	674	48

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1231	1194	698	1230	1210	328	722	0	0	336	0	0
Stage 1	774	774	-	412	412	-	-	-	-	-	-	-
Stage 2	457	420	-	818	798	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	154	187	440	154	183	713	880	-	-	1223	-	-
Stage 1	391	408	-	617	594	-	-	-	-	-	-	-
Stage 2	583	589	-	370	398	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	104	172	440	103	169	713	880	-	-	1223	-	-
Mov Cap-2 Maneuver	104	172	-	103	169	-	-	-	-	-	-	-
Stage 1	372	395	-	587	565	-	-	-	-	-	-	-
Stage 2	477	561	-	286	386	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	57.2	35.3	1	0.4
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	880	-	-	178	216	1223	-	-
HCM Lane V/C Ratio	0.047	-	-	0.656	0.463	0.031	-	-
HCM Control Delay (s)	9.3	-	-	57.2	35.3	8	-	-
HCM Lane LOS	A	-	-	F	E	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	3.8	2.2	0.1	-	-

HCM 2010 Signalized Intersection Summary
20: Old Redwood Hwy & E Railroad Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	44	34	9	47	33	37	284	15	34	600	43
Future Volume (veh/h)	26	44	34	9	47	33	37	284	15	34	600	43
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	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	29	49	38	10	53	37	42	319	17	38	674	48
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	166	103	92	190	120	78	849	45	73	827	59
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.04	0.48	0.48	0.04	0.48	0.48
Sat Flow, veh/h	238	880	545	73	1011	636	1774	1753	93	1774	1719	122
Grp Volume(v), veh/h	116	0	0	100	0	0	42	0	336	38	0	722
Grp Sat Flow(s),veh/h/ln	1664	0	0	1719	0	0	1774	0	1846	1774	0	1841
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	5.8	1.1	0.0	16.9
Cycle Q Clear(g_c), s	2.9	0.0	0.0	2.5	0.0	0.0	1.2	0.0	5.8	1.1	0.0	16.9
Prop In Lane	0.25		0.33	0.10		0.37	1.00		0.05	1.00		0.07
Lane Grp Cap(c), veh/h	402	0	0	402	0	0	78	0	894	73	0	886
V/C Ratio(X)	0.29	0.00	0.00	0.25	0.00	0.00	0.54	0.00	0.38	0.52	0.00	0.82
Avail Cap(c_a), veh/h	891	0	0	916	0	0	193	0	1606	228	0	1638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	0.0	17.7	0.0	0.0	23.7	0.0	8.2	23.8	0.0	11.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.3	0.0	0.0	5.6	0.0	0.3	5.7	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	1.2	0.0	0.0	0.7	0.0	3.0	0.6	0.0	8.9
LnGrp Delay(d),s/veh	18.2	0.0	0.0	18.0	0.0	0.0	29.3	0.0	8.5	29.5	0.0	13.1
LnGrp LOS	B			B			C		A	C		B
Approach Vol, veh/h		116			100			378			760	
Approach Delay, s/veh		18.2			18.0			10.8			13.9	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	29.5		14.5	6.7	29.3		14.5
Change Period (Y+Rc), s	4.5	5.0		5.0	4.5	5.0		5.0
Max Green Setting (Gmax), s	6.5	44.0		25.0	5.5	45.0		25.0
Max Q Clear Time (g_c+I1), s	13.1	7.8		4.9	3.2	18.9		4.5
Green Ext Time (p_c), s	0.0	2.4		0.5	0.0	5.4		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	13.7
HCM 2010 LOS	B

HCM 2010 TWSC
21: E Railroad Ave & Bodway Pkwy

05/15/2019

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	108	85	23	73	19
Future Vol, veh/h	8	108	85	23	73	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	9	124	98	26	84	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	124	0	-	0	253	111
Stage 1	-	-	-	-	111	-
Stage 2	-	-	-	-	142	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1469	-	-	-	738	945
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	887	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1469	-	-	-	733	945
Mov Cap-2 Maneuver	-	-	-	-	733	-
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	887	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1469	-	-	-	769
HCM Lane V/C Ratio	0.006	-	-	-	0.138
HCM Control Delay (s)	7.5	0	-	-	10.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

HCM 2010 TWSC
21: E Railroad Ave & Bodway Pkwy 05/16/2019

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	108	85	23	73	19
Future Vol, veh/h	8	108	85	23	73	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	9	124	98	26	84	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	124	0	-	0	253	111
Stage 1	-	-	-	-	111	-
Stage 2	-	-	-	-	142	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1469	-	-	-	738	945
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	887	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1469	-	-	-	733	945
Mov Cap-2 Maneuver	-	-	-	-	733	-
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	887	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1469	-	-	-	769
HCM Lane V/C Ratio	0.006	-	-	-	0.138
HCM Control Delay (s)	7.5	0	-	-	10.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

HCM 2010 TWSC
22: Petaluma Hill Rd & E Railroad Ave 05/15/2019

Intersection	
Int Delay, s/veh	279.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	93	0	86	1	1	11	36	1185	0	37	1185	66
Future Vol, veh/h	93	0	86	1	1	11	36	1185	0	37	1185	66
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	99	0	91	1	1	12	38	1261	0	39	1261	70

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2683	2676	1261	2757	2746	1261	1331	0	0	1261	0	0
Stage 1	1339	1339	-	1337	1337	-	-	-	-	-	-	-
Stage 2	1344	1337	-	1420	1409	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 14	22	208	13	20	208	519	-	-	551	-	-
Stage 1	188	222	-	189	222	-	-	-	-	-	-	-
Stage 2	187	222	-	169	205	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 11	19	208	7	17	208	519	-	-	551	-	-
Mov Cap-2 Maneuver	~ 11	19	-	7	17	-	-	-	-	-	-	-
Stage 1	174	206	-	175	206	-	-	-	-	-	-	-
Stage 2	163	206	-	88	190	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, $	4211.1	100	0.4	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	519	-	-	20	51	551	-	-
HCM Lane V/C Ratio	0.074	-	-	9.521	0.271	0.071	-	-
HCM Control Delay (s)	12.5	-	-	$ 4211.1	100	12	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	24.2	0.9	0.2	-	-

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

HCM 2010 Signalized Intersection Summary
22: Petaluma Hill Rd & E Railroad Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	0	86	1	1	11	36	1185	0	37	1185	66
Future Volume (veh/h)	93	0	86	1	1	11	36	1185	0	37	1185	66
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	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	99	0	91	1	1	12	38	1261	0	39	1261	70
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	0	249	28	24	144	98	1237	0	127	1268	1078
Arrive On Green	0.16	0.00	0.16	0.16	0.16	0.16	0.06	0.66	0.00	0.07	0.68	0.68
Sat Flow, veh/h	365	0	1583	0	152	914	1774	1863	0	1774	1863	1583
Grp Volume(v), veh/h	99	0	91	14	0	0	38	1261	0	39	1261	70
Grp Sat Flow(s),veh/h/ln	365	0	1583	1066	0	0	1774	1863	0	1774	1863	1583
Q Serve(g_s), s	0.0	0.0	7.2	0.0	0.0	0.0	2.9	93.0	0.0	2.9	93.7	2.1
Cycle Q Clear(g_c), s	22.0	0.0	7.2	22.0	0.0	0.0	2.9	93.0	0.0	2.9	93.7	2.1
Prop In Lane	1.00		1.00	0.07		0.86	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	109	0	249	195	0	0	98	1237	0	127	1268	1078
V/C Ratio(X)	0.91	0.00	0.37	0.07	0.00	0.00	0.39	1.02	0.00	0.31	0.99	0.06
Avail Cap(c_a), veh/h	109	0	249	195	0	0	127	1237	0	127	1268	1078
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.6	0.0	52.8	50.4	0.0	0.0	63.9	23.5	0.0	61.7	22.1	7.5
Incr Delay (d2), s/veh	58.5	0.0	0.9	0.2	0.0	0.0	2.5	30.5	0.0	1.4	23.9	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	5.6	0.0	3.2	0.5	0.0	0.0	1.5	57.9	0.0	1.5	56.1	0.9
LnGrp Delay(d),s/veh	122.2	0.0	53.7	50.5	0.0	0.0	66.4	54.0	0.0	63.1	46.0	7.5
LnGrp LOS	F		D	D			E	F		E	D	A
Approach Vol, veh/h		190			14			1299			1370	
Approach Delay, s/veh		89.4			50.5			54.3			44.6	
Approach LOS		F			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	98.0		27.0	12.7	100.3		27.0
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	93.0		22.0	10.0	93.0		22.0
Max Q Clear Time (g_c+I1), s	4.9	95.0		24.0	4.9	95.7		24.0
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	52.0
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	163	14	28	86	582	14	489	8	532	648	14
Future Volume (veh/h)	28	163	14	28	86	582	14	489	8	532	648	14
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		0.98	1.00		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	1976	1937	1976	1976	1937	1976	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	29	172	12	29	91	518	15	515	5	560	682	14
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	397	26	49	87	438	13	433	4	571	585	12
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.23	0.23	0.23	0.32	0.32	0.32
Sat Flow, veh/h	107	1230	80	46	269	1358	54	1859	18	1774	1819	37
Grp Volume(v), veh/h	213	0	0	638	0	0	535	0	0	560	0	696
Grp Sat Flow(s),veh/h/ln	1417	0	0	1672	0	0	1931	0	0	1774	0	1856
Q Serve(g_s), s	0.0	0.0	0.0	21.5	0.0	0.0	25.6	0.0	0.0	34.4	0.0	35.4
Cycle Q Clear(g_c), s	9.3	0.0	0.0	35.5	0.0	0.0	25.6	0.0	0.0	34.4	0.0	35.4
Prop In Lane	0.14		0.06	0.05		0.81	0.03		0.01	1.00		0.02
Lane Grp Cap(c), veh/h	494	0	0	574	0	0	449	0	0	571	0	597
V/C Ratio(X)	0.43	0.00	0.00	1.11	0.00	0.00	1.19	0.00	0.00	0.98	0.00	1.17
Avail Cap(c_a), veh/h	494	0	0	574	0	0	449	0	0	571	0	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	0.0	38.2	0.0	0.0	42.2	0.0	0.0	37.0	0.0	37.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	72.1	0.0	0.0	106.0	0.0	0.0	32.6	0.0	91.6
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	4.9	0.0	0.0	28.9	0.0	0.0	26.8	0.0	0.0	22.0	0.0	33.3
LnGrp Delay(d),s/veh	28.6	0.0	0.0	110.3	0.0	0.0	148.2	0.0	0.0	69.6	0.0	128.9
LnGrp LOS	C			F			F			E		F
Approach Vol, veh/h		213			638			535			1256	
Approach Delay, s/veh		28.6			110.3			148.2			102.4	
Approach LOS		C			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		30.1		40.0		39.9		40.0
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		25.6		35.5		35.4		35.5
Max Q Clear Time (g_c+I1), s		27.6		11.3		37.4		37.5
Green Ext Time (p_c), s		0.0		0.4		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	107.6
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	163	14	28	86	582	14	489	8	532	648	14
Future Volume (veh/h)	28	163	14	28	86	582	14	489	8	532	648	14
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		0.98	1.00		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	1976	1937	1976	1976	1937	1937	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	29	172	12	29	91	518	15	515	5	560	682	14
Adj No. of Lanes	0	1	0	0	1	1	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	312	20	107	311	985	15	499	5	693	710	15
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.27	0.27	0.27	0.39	0.39	0.39
Sat Flow, veh/h	139	1500	98	303	1495	1647	54	1859	18	1774	1819	37
Grp Volume(v), veh/h	213	0	0	120	0	518	535	0	0	560	0	696
Grp Sat Flow(s),veh/h/ln	1736	0	0	1798	0	1647	1931	0	0	1774	0	1856
Q Serve(g_s), s	2.6	0.0	0.0	0.0	0.0	18.7	27.3	0.0	0.0	28.6	0.0	37.2
Cycle Q Clear(g_c), s	10.5	0.0	0.0	5.3	0.0	18.7	27.3	0.0	0.0	28.6	0.0	37.2
Prop In Lane	0.14		0.06	0.24		1.00	0.03		0.01	1.00		0.02
Lane Grp Cap(c), veh/h	401	0	0	418	0	985	519	0	0	693	0	725
V/C Ratio(X)	0.53	0.00	0.00	0.29	0.00	0.53	1.03	0.00	0.00	0.81	0.00	0.96
Avail Cap(c_a), veh/h	511	0	0	533	0	1097	519	0	0	719	0	753
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.9	0.0	0.0	34.0	0.0	12.0	37.2	0.0	0.0	27.6	0.0	30.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.1	0.0	0.2	47.8	0.0	0.0	6.1	0.0	22.7
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	5.4	0.0	0.0	2.8	0.0	14.4	21.3	0.0	0.0	15.2	0.0	23.5
LnGrp Delay(d),s/veh	36.3	0.0	0.0	34.1	0.0	12.1	84.9	0.0	0.0	33.6	0.0	52.9
LnGrp LOS	D			C		B	F			C		D
Approach Vol, veh/h		213			638			535			1256	
Approach Delay, s/veh		36.3			16.3			84.9			44.3	
Approach LOS		D			B			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		31.8		25.6		44.2		25.6
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		27.3		28.0		41.2		28.0
Max Q Clear Time (g_c+I1), s		29.3		12.5		39.2		20.7
Green Ext Time (p_c), s		0.0		0.4		0.5		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	45.1
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
24: N McDowell Blvd & Old Redwood Hwy

05/15/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	868	843	133	678	19	491	68	86	8	26	74
Future Volume (veh/h)	252	868	843	133	678	19	491	68	86	8	26	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	262	904	0	139	706	16	562	0	42	8	27	31
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	246	964	739	573	1640	37	699	0	309	145	152	129
Arrive On Green	0.23	0.45	0.00	0.32	0.46	0.46	0.20	0.00	0.20	0.08	0.08	0.08
Sat Flow, veh/h	1774	3539	1583	1774	3538	80	3548	0	1569	1774	1863	1572
Grp Volume(v), veh/h	262	904	0	139	353	369	562	0	42	8	27	31
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1848	1774	0	1569	1774	1863	1572
Q Serve(g_s), s	18.0	31.6	0.0	7.5	17.4	17.4	19.6	0.0	2.9	0.5	1.8	2.4
Cycle Q Clear(g_c), s	18.0	31.6	0.0	7.5	17.4	17.4	19.6	0.0	2.9	0.5	1.8	2.4
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	964	739	573	820	857	699	0	309	145	152	129
V/C Ratio(X)	1.07	0.94	0.00	0.24	0.43	0.43	0.80	0.00	0.14	0.06	0.18	0.24
Avail Cap(c_a), veh/h	246	964	739	573	820	857	1048	0	463	420	441	372
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	34.4	0.0	32.3	23.4	23.4	49.8	0.0	43.1	55.0	55.6	55.9
Incr Delay (d2), s/veh	64.4	12.3	0.0	0.1	1.6	1.6	1.5	0.0	0.1	0.1	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.1	16.9	0.0	3.7	8.8	9.2	9.7	0.0	1.2	0.3	0.9	1.1
LnGrp Delay(d),s/veh	114.4	46.7	0.0	32.4	25.0	25.0	51.3	0.0	43.2	55.1	55.8	56.3
LnGrp LOS	F	D		C	C	C	D		D	E	E	E
Approach Vol, veh/h		1166			861			604			66	
Approach Delay, s/veh		61.9			26.2			50.8			55.9	
Approach LOS		E			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	39.3		14.5	22.0	64.3		29.2
Change Period (Y+Rc), s	5.0	* 5		* 4.7	4.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	* 34		* 30	18.0	26.3		37.0
Max Q Clear Time (g_c+I1), s	19.6	33.6		4.4	20.0	19.4		21.6
Green Ext Time (p_c), s	0.0	0.5		0.1	0.0	3.4		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	47.9
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
25: US 101 NB Off-ramp & Old Redwood Hwy 05/15/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1465	478	0	1212	434	577
Future Volume (veh/h)	1465	478	0	1212	434	577
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	1495	0	0	1237	443	471
Adj No. of Lanes	2	1	0	2	2	2
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2260	1011	0	2260	799	647
Arrive On Green	0.64	0.00	0.00	1.00	0.23	0.23
Sat Flow, veh/h	3632	1583	0	3725	3442	2787
Grp Volume(v), veh/h	1495	0	0	1237	443	471
Grp Sat Flow(s),veh/h/ln	1770	1583	0	1770	1721	1393
Q Serve(g_s), s	17.2	0.0	0.0	0.0	7.4	10.2
Cycle Q Clear(g_c), s	17.2	0.0	0.0	0.0	7.4	10.2
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2260	1011	0	2260	799	647
V/C Ratio(X)	0.66	0.00	0.00	0.55	0.55	0.73
Avail Cap(c_a), veh/h	2260	1011	0	2260	1043	845
HCM Platoon Ratio	1.00	1.00	1.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.82	1.00	1.00
Uniform Delay (d), s/veh	7.3	0.0	0.0	0.0	22.0	23.1
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.8	0.6	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.0	0.0	0.2	3.6	4.1
LnGrp Delay(d),s/veh	8.9	0.0	0.0	0.8	22.6	25.3
LnGrp LOS	A			A	C	C
Approach Vol, veh/h	1495			1237	914	
Approach Delay, s/veh	8.9			0.8	24.0	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		45.5				45.5		19.5
Change Period (Y+Rc), s		5.1				5.1		5.1
Max Green Setting (Gmax), s		35.8				35.8		19.0
Max Q Clear Time (g_c+I1), s		19.2				2.0		12.2
Green Ext Time (p_c), s		12.1				15.7		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	9.9
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1: Snyder Ln & Rohnert Park Expwy

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	259	300	50	284	134	276	292	36	80	334	177
Future Volume (veh/h)	223	259	300	50	284	134	276	292	36	80	334	177
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		0.98	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	256	298	328	57	326	146	317	336	39	92	384	193
Adj No. of Lanes	2	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	568	804	643	201	621	494	617	881	564	481	741	583
Arrive On Green	0.16	0.23	0.23	0.11	0.18	0.18	0.18	0.25	0.25	0.14	0.21	0.21
Sat Flow, veh/h	3442	3539	1579	1774	3539	1554	3442	3539	1548	3442	3539	1537
Grp Volume(v), veh/h	256	298	328	57	326	146	317	336	39	92	384	193
Grp Sat Flow(s),veh/h/ln	1721	1770	1579	1774	1770	1554	1721	1770	1548	1721	1770	1537
Q Serve(g_s), s	4.9	5.1	11.3	2.1	6.1	5.1	6.0	5.7	1.2	1.7	7.0	6.5
Cycle Q Clear(g_c), s	4.9	5.1	11.3	2.1	6.1	5.1	6.0	5.7	1.2	1.7	7.0	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	568	804	643	201	621	494	617	881	564	481	741	583
V/C Ratio(X)	0.45	0.37	0.51	0.28	0.52	0.30	0.51	0.38	0.07	0.19	0.52	0.33
Avail Cap(c_a), veh/h	714	2216	1273	368	2211	1192	714	2211	1146	714	2211	1221
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	23.6	16.1	29.4	27.1	18.7	26.8	22.5	15.1	27.5	25.4	16.2
Incr Delay (d2), s/veh	0.2	0.1	0.2	0.3	0.3	0.1	0.2	0.1	0.0	0.1	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.5	4.9	1.1	3.0	2.2	2.9	2.8	0.5	0.8	3.4	2.8
LnGrp Delay(d),s/veh	27.5	23.7	16.3	29.7	27.3	18.8	27.1	22.6	15.1	27.6	25.6	16.3
LnGrp LOS	C	C	B	C	C	B	C	C	B	C	C	B
Approach Vol, veh/h		882			529			692			669	
Approach Delay, s/veh		22.0			25.2			24.3			23.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	23.8	12.2	22.2	17.0	20.9	15.9	18.5
Change Period (Y+Rc), s	4.0	5.8	4.0	* 5.8	4.0	5.8	4.0	* 5.8
Max Green Setting (Gmax), s	15.0	45.2	15.0	* 45	15.0	45.2	15.0	* 45
Max Q Clear Time (g_c+I1), s	3.7	7.7	4.1	13.3	8.0	9.0	6.9	8.1
Green Ext Time (p_c), s	0.0	0.7	0.0	0.8	0.1	0.9	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	23.5
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
2: US 101 SB Ramps & Gravenstein Hwy

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	772	286	128	802	0	0	0	0	649	3	224
Future Volume (veh/h)	0	772	286	128	802	0	0	0	0	649	3	224
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	8	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1937	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	788	141	131	818	0				662	3	131
Adj No. of Lanes	0	2	1	1	2	0				2	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1335	611	459	2395	0				831	46	343
Arrive On Green	0.00	0.38	0.38	0.35	0.91	0.00				0.24	0.24	0.24
Sat Flow, veh/h	0	3632	1621	1774	3632	0				3442	36	1553
Grp Volume(v), veh/h	0	788	141	131	818	0				662	0	134
Grp Sat Flow(s),veh/h/ln	0	1770	1621	1774	1770	0				1721	0	1589
Q Serve(g_s), s	0.0	19.6	6.5	5.8	3.4	0.0				20.0	0.0	7.7
Cycle Q Clear(g_c), s	0.0	19.6	6.5	5.8	3.4	0.0				20.0	0.0	7.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.98
Lane Grp Cap(c), veh/h	0	1335	611	459	2395	0				831	0	389
V/C Ratio(X)	0.00	0.59	0.23	0.29	0.34	0.00				0.80	0.00	0.34
Avail Cap(c_a), veh/h	0	1335	611	469	2416	0				1111	0	513
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.58	0.58	0.98	0.98	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	27.4	23.4	28.7	2.0	0.0				39.2	0.0	35.3
Incr Delay (d2), s/veh	0.0	1.1	0.5	0.1	0.4	0.0				2.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	4.6
%ile BackOfQ(50%),veh/ln	0.0	9.7	3.0	2.9	1.7	0.0				9.7	0.0	4.9
LnGrp Delay(d),s/veh	0.0	28.6	23.9	28.9	2.4	0.0				41.3	0.0	40.1
LnGrp LOS		C	C	C	A					D		D
Approach Vol, veh/h		929			949						796	
Approach Delay, s/veh		27.8			6.0						41.1	
Approach LOS		C			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	13.6	46.0		30.4		79.6		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	9.5	41.5		35.5		65.5		
Max Q Clear Time (g_c+I1), s	7.8	21.6		22.0		5.4		
Green Ext Time (p_c), s	0.1	5.5		3.9		5.7		

Intersection Summary	
HCM 2010 Ctrl Delay	24.1
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
3: US 101 NB Off-ramp & Gravenstein Hwy

04/02/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1417	0	0	620	310	279
Future Volume (veh/h)	1417	0	0	620	310	279
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863
Adj Flow Rate, veh/h	1461	0	0	639	320	245
Adj No. of Lanes	2	0	0	3	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	2544	0	0	3655	686	316
Arrive On Green	1.00	0.00	0.00	0.72	0.20	0.20
Sat Flow, veh/h	3725	0	0	5421	3442	1583
Grp Volume(v), veh/h	1461	0	0	639	320	245
Grp Sat Flow(s),veh/h/ln	1770	0	0	1695	1721	1583
Q Serve(g_s), s	0.0	0.0	0.0	4.4	9.0	16.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	4.4	9.0	16.1
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2544	0	0	3655	686	316
V/C Ratio(X)	0.57	0.00	0.00	0.17	0.47	0.78
Avail Cap(c_a), veh/h	2544	0	0	3655	1048	482
HCM Platoon Ratio	2.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.00	0.00	0.83	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	5.0	38.9	41.7
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.1	0.5	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	2.1	4.4	7.5
LnGrp Delay(d),s/veh	0.7	0.0	0.0	5.1	39.4	46.0
LnGrp LOS	A			A	D	D
Approach Vol, veh/h	1461			639	565	
Approach Delay, s/veh	0.7			5.1	42.3	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.6				83.6		26.4
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		67.5				67.5		33.5
Max Q Clear Time (g_c+I1), s		2.0				6.4		18.1
Green Ext Time (p_c), s		32.7				9.0		3.8

Intersection Summary	
HCM 2010 Ctrl Delay	10.6
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Old Redwood Hwy & Gravenstein Hwy/Gravenstein Way

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	757	136	828	64	50	65	287	585	28	28	185	222
Future Volume (veh/h)	757	136	828	64	50	65	287	585	28	28	185	222
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	3	0	0	0	0	0	0	3	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	780	140	0	66	52	51	296	603	22	29	191	229
Adj No. of Lanes	2	1	1	1	1	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	992	537	456	179	85	84	395	795	28	248	261	678
Arrive On Green	0.29	0.29	0.00	0.10	0.10	0.10	0.22	0.22	0.22	0.14	0.14	0.14
Sat Flow, veh/h	3442	1863	1583	1774	846	830	1774	3565	130	1774	1863	1583
Grp Volume(v), veh/h	780	140	0	66	0	103	296	315	310	29	191	229
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	0	1676	1774	1863	1832	1774	1863	1583
Q Serve(g_s), s	14.7	4.1	0.0	2.4	0.0	4.1	10.9	11.1	11.1	1.0	6.9	6.8
Cycle Q Clear(g_c), s	14.7	4.1	0.0	2.4	0.0	4.1	10.9	11.1	11.1	1.0	6.9	6.8
Prop In Lane	1.00		1.00	1.00		0.50	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	992	537	456	179	0	169	395	415	408	248	261	678
V/C Ratio(X)	0.79	0.26	0.00	0.37	0.00	0.61	0.75	0.76	0.76	0.12	0.73	0.34
Avail Cap(c_a), veh/h	1201	650	553	607	0	573	480	504	496	632	663	1019
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	19.3	0.0	29.6	0.0	30.4	25.6	25.8	25.8	26.5	29.1	13.5
Incr Delay (d2), s/veh	2.3	0.1	0.0	0.5	0.0	1.3	3.9	4.1	4.2	0.1	1.5	0.1
Initial Q Delay(d3),s/veh	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	2.1	0.0	1.2	0.0	2.0	5.8	6.4	6.3	0.5	3.7	4.4
LnGrp Delay(d),s/veh	25.9	19.4	0.0	30.1	0.0	31.7	29.5	30.2	30.4	26.6	30.6	13.6
LnGrp LOS	C	B		C		C	C	C	C	C	C	B
Approach Vol, veh/h		920			169			921			449	
Approach Delay, s/veh		24.9			31.1			30.0			21.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		24.7		14.3		11.1		20.1
Change Period (Y+Rc), s		4.5		4.5		4.0		4.5
Max Green Setting (Gmax), s		24.5		25.0		24.0		19.0
Max Q Clear Time (g_c+I1), s		16.7		8.9		6.1		13.1
Green Ext Time (p_c), s		3.3		1.0		0.2		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	26.7
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	280	10	28	209	352	14	372	12	457	418	93
Future Volume (veh/h)	93	280	10	28	209	352	14	372	12	457	418	93
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	4	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.95	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	96	289	8	29	215	317	14	384	11	471	431	91
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	557	456	41	461	395	23	715	20	485	865	716
Arrive On Green	0.06	0.30	0.30	0.02	0.26	0.26	0.01	0.20	0.20	0.27	0.46	0.46
Sat Flow, veh/h	1774	1863	1524	1774	1770	1516	1774	3508	100	1774	1863	1543
Grp Volume(v), veh/h	96	289	8	29	215	317	14	193	202	471	431	91
Grp Sat Flow(s),veh/h/ln	1774	1863	1524	1774	1770	1516	1774	1770	1838	1774	1863	1543
Q Serve(g_s), s	4.8	11.5	0.3	1.5	9.2	17.5	0.7	8.7	8.8	23.5	14.5	3.0
Cycle Q Clear(g_c), s	4.8	11.5	0.3	1.5	9.2	17.5	0.7	8.7	8.8	23.5	14.5	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	109	557	456	41	461	395	23	361	375	485	865	716
V/C Ratio(X)	0.88	0.52	0.02	0.71	0.47	0.80	0.60	0.54	0.54	0.97	0.50	0.13
Avail Cap(c_a), veh/h	109	613	502	119	592	507	79	632	656	485	1091	904
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	26.1	22.1	43.5	27.9	31.0	44.0	31.9	31.9	32.6	16.7	13.7
Incr Delay (d2), s/veh	49.8	0.3	0.0	8.2	0.3	5.4	8.9	0.5	0.4	33.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	6.0	0.1	0.8	4.5	7.9	0.4	4.3	4.5	18.6	7.5	1.3
LnGrp Delay(d),s/veh	91.5	26.4	22.1	51.7	28.2	36.4	52.8	32.3	32.3	82.5	16.9	13.7
LnGrp LOS	F	C	C	D	C	D	D	C	C	F	B	B
Approach Vol, veh/h		393			561			409			993	
Approach Delay, s/veh		42.2			34.0			33.0			47.7	
Approach LOS		D			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	31.3	5.7	46.1	10.0	27.8	29.0	22.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.6	29.5	4.0	52.5	5.5	30.0	24.5	32.0
Max Q Clear Time (g_c+I1), s	3.5	13.5	2.7	16.5	6.8	19.5	25.5	10.8
Green Ext Time (p_c), s	0.0	0.5	0.0	0.9	0.0	1.1	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	41.0
HCM 2010 LOS	D

HCM 2010 AWSC
6: La Salle Ave & E Cotati Ave

04/02/2019

Intersection	
Intersection Delay, s/veh	45.9
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	839	165	75	554	1	151	0	82	9	0	14
Future Vol, veh/h	1	839	165	75	554	1	151	0	82	9	0	14
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	874	172	78	577	1	157	0	85	9	0	15
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	67.1	22.7	20.7	12.1
HCM LOS	F	C	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	65%	100%	0%	0%	100%	0%	0%	39%
Vol Thru, %	0%	0%	100%	63%	0%	100%	99%	0%
Vol Right, %	35%	0%	0%	37%	0%	0%	1%	61%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	233	1	559	445	75	369	186	23
LT Vol	151	1	0	0	75	0	0	9
Through Vol	0	0	559	280	0	369	185	0
RT Vol	82	0	0	165	0	0	1	14
Lane Flow Rate	243	1	583	463	78	385	193	24
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.548	0.002	1.096	0.837	0.164	0.754	0.379	0.057
Departure Headway (Hd)	8.351	7.281	6.769	6.503	7.811	7.298	7.294	8.881
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	434	489	536	556	462	500	497	406
Service Time	6.051	5.065	4.552	4.286	5.511	4.998	4.994	6.581
HCM Lane V/C Ratio	0.56	0.002	1.088	0.833	0.169	0.77	0.388	0.059
HCM Control Delay	20.7	10.1	93.2	34.5	12	29.1	14.4	12.1
HCM Lane LOS	C	B	F	D	B	D	B	B
HCM 95th-tile Q	3.2	0	18.2	8.7	0.6	6.5	1.8	0.2

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	449	198	57	582	52	122	120	47	43	186	87
Future Volume (veh/h)	121	449	198	57	582	52	122	120	47	43	186	87
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	2	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.93	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	130	483	181	61	626	45	131	129	24	46	200	56
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	656	244	185	847	60	229	350	289	256	283	79
Arrive On Green	0.13	0.26	0.26	0.10	0.25	0.25	0.13	0.19	0.19	0.14	0.20	0.20
Sat Flow, veh/h	1774	2502	930	1774	3331	239	1774	1863	1535	1774	1393	390
Grp Volume(v), veh/h	130	341	323	61	332	339	131	129	24	46	0	256
Grp Sat Flow(s),veh/h/ln	1774	1770	1662	1774	1770	1801	1774	1863	1535	1774	0	1783
Q Serve(g_s), s	4.3	11.0	11.1	2.0	10.8	10.8	4.3	3.8	0.8	1.4	0.0	8.3
Cycle Q Clear(g_c), s	4.3	11.0	11.1	2.0	10.8	10.8	4.3	3.8	0.8	1.4	0.0	8.3
Prop In Lane	1.00		0.56	1.00		0.13	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	229	464	436	185	449	457	229	350	289	256	0	362
V/C Ratio(X)	0.57	0.73	0.74	0.33	0.74	0.74	0.57	0.37	0.08	0.18	0.00	0.71
Avail Cap(c_a), veh/h	285	827	776	285	855	870	427	960	791	285	0	776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.6	21.0	21.1	26.0	21.5	21.5	25.6	22.1	20.9	23.5	0.0	23.2
Incr Delay (d2), s/veh	0.8	0.8	0.9	0.4	0.9	0.9	0.8	0.2	0.0	0.1	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	5.4	5.2	1.0	5.5	5.6	2.2	2.0	0.3	0.7	0.0	4.2
LnGrp Delay(d),s/veh	26.4	21.9	22.0	26.3	22.5	22.5	26.4	22.4	21.0	23.6	0.0	24.1
LnGrp LOS	C	C	C	C	C	C	C	C	C	C		C
Approach Vol, veh/h		794			732			284			302	
Approach Delay, s/veh		22.7			22.8			24.1			24.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	21.2	12.1	17.6	12.1	20.6	13.0	16.6
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	10.0	29.1	15.0	27.1	10.0	30.1	10.0	32.1
Max Q Clear Time (g_c+I1), s	14.0	13.1	6.3	10.3	6.3	12.8	3.4	5.8
Green Ext Time (p_c), s	0.0	1.3	0.0	0.5	0.0	1.3	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	23.1
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	286	69	12	456	430	48	124	11	244	185	203
Future Volume (veh/h)	181	286	69	12	456	430	48	124	11	244	185	203
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	187	295	41	12	470	238	49	128	7	252	191	78
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	298	1221	687	48	723	579	178	605	33	299	457	644
Arrive On Green	0.17	0.34	0.34	0.03	0.20	0.20	0.10	0.18	0.18	0.17	0.25	0.25
Sat Flow, veh/h	1774	3539	1530	1774	3539	1531	1774	3410	185	1774	1863	1543
Grp Volume(v), veh/h	187	295	41	12	470	238	49	66	69	252	191	78
Grp Sat Flow(s),veh/h/ln	1774	1770	1530	1774	1770	1531	1774	1770	1825	1774	1863	1543
Q Serve(g_s), s	6.2	3.8	1.0	0.4	7.7	7.3	1.6	2.0	2.0	8.7	5.4	2.0
Cycle Q Clear(g_c), s	6.2	3.8	1.0	0.4	7.7	7.3	1.6	2.0	2.0	8.7	5.4	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	298	1221	687	48	723	579	178	314	324	299	457	644
V/C Ratio(X)	0.63	0.24	0.06	0.25	0.65	0.41	0.27	0.21	0.21	0.84	0.42	0.12
Avail Cap(c_a), veh/h	562	2137	1083	422	1857	1070	562	816	842	562	859	977
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	14.8	10.0	30.1	23.0	14.7	26.2	22.2	22.2	25.4	20.0	11.4
Incr Delay (d2), s/veh	0.8	0.0	0.0	1.0	0.4	0.2	0.3	0.1	0.1	2.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	1.9	0.4	0.2	3.8	3.1	0.8	1.0	1.0	4.5	2.8	0.8
LnGrp Delay(d),s/veh	25.2	14.8	10.0	31.1	23.4	14.9	26.6	22.3	22.3	27.9	20.2	11.5
LnGrp LOS	C	B	A	C	C	B	C	C	C	C	C	B
Approach Vol, veh/h		523			720			184			521	
Approach Delay, s/veh		18.2			20.7			23.4			22.6	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.7	26.7	10.3	20.4	14.6	17.8	14.6	16.1
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	15.0	38.1	20.0	29.1	20.0	33.1	20.0	29.1
Max Q Clear Time (g_c+I1), s	12.4	5.8	3.6	7.4	8.2	9.7	10.7	4.0
Green Ext Time (p_c), s	0.0	0.7	0.0	0.4	0.1	1.2	0.1	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	20.8
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	410	71	107	490	16	143	48	92	69	45	259
Future Volume (veh/h)	148	410	71	107	490	16	143	48	92	69	45	259
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.96	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	157	436	53	114	521	16	152	51	33	73	48	155
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	742	90	195	813	25	365	383	313	244	161	509
Arrive On Green	0.11	0.23	0.23	0.11	0.23	0.23	0.21	0.21	0.21	0.22	0.22	0.22
Sat Flow, veh/h	1774	3179	384	1774	3503	107	1774	1863	1522	1091	717	1485
Grp Volume(v), veh/h	157	242	247	114	263	274	152	51	33	121	0	155
Grp Sat Flow(s),veh/h/ln	1774	1770	1794	1774	1770	1841	1774	1863	1522	1808	0	1485
Q Serve(g_s), s	7.3	10.3	10.4	5.2	11.4	11.4	6.3	1.9	1.5	4.7	0.0	6.6
Cycle Q Clear(g_c), s	7.3	10.3	10.4	5.2	11.4	11.4	6.3	1.9	1.5	4.7	0.0	6.6
Prop In Lane	1.00		0.21	1.00		0.06	1.00		1.00	0.60		1.00
Lane Grp Cap(c), veh/h	197	413	419	195	411	427	365	383	313	405	0	509
V/C Ratio(X)	0.80	0.59	0.59	0.59	0.64	0.64	0.42	0.13	0.11	0.30	0.00	0.30
Avail Cap(c_a), veh/h	522	1043	1058	313	835	869	643	675	552	655	0	714
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.8	28.9	29.0	36.0	29.4	29.4	29.3	27.6	27.4	27.4	0.0	21.0
Incr Delay (d2), s/veh	7.2	2.8	2.8	2.8	3.5	3.4	1.6	0.3	0.3	0.9	0.0	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	4.0	5.4	5.5	2.7	6.0	6.2	3.2	1.0	0.7	2.5	0.0	2.8
LnGrp Delay(d),s/veh	44.0	31.7	31.8	38.8	33.0	32.9	30.9	27.9	27.7	28.3	0.0	21.7
LnGrp LOS	D	C	C	D	C	C	C	C	C	C		C
Approach Vol, veh/h		646			651			236			276	
Approach Delay, s/veh		34.7			33.9			29.8			24.6	
Approach LOS		C			C			C			C	

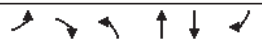
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	24.7		24.2	13.4	24.6		22.7
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		5.2
Max Green Setting (Gmax), s	15.0	50.1		* 31	25.0	40.1		30.8
Max Q Clear Time (g_c+I1), s	7.3	12.4		8.6	9.3	13.4		8.3
Green Ext Time (p_c), s	0.1	6.3		2.5	0.3	6.3		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	32.3
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

04/02/2019



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	198	288	230	717	462	211
Future Volume (veh/h)	198	288	230	717	462	211
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.98	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1976	1863	1863	1863	1863
Adj Flow Rate, veh/h	204	159	237	739	476	150
Adj No. of Lanes	0	0	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	244	190	299	1025	555	462
Arrive On Green	0.25	0.25	0.17	0.55	0.30	0.30
Sat Flow, veh/h	973	758	1774	1863	1863	1550
Grp Volume(v), veh/h	364	0	237	739	476	150
Grp Sat Flow(s),veh/h/ln	1735	0	1774	1863	1863	1550
Q Serve(g_s), s	9.5	0.0	6.1	14.1	11.5	3.6
Cycle Q Clear(g_c), s	9.5	0.0	6.1	14.1	11.5	3.6
Prop In Lane	0.56	0.44	1.00			1.00
Lane Grp Cap(c), veh/h	435	0	299	1025	555	462
V/C Ratio(X)	0.84	0.00	0.79	0.72	0.86	0.32
Avail Cap(c_a), veh/h	1671	0	928	2047	916	762
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	0.0	19.1	8.0	15.8	13.0
Incr Delay (d2), s/veh	1.7	0.0	1.8	0.4	2.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	3.1	7.1	6.2	1.6
LnGrp Delay(d),s/veh	18.6	0.0	20.9	8.4	18.0	13.2
LnGrp LOS	B		C	A	B	B
Approach Vol, veh/h	364			976	626	
Approach Delay, s/veh	18.6			11.4	16.8	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		31.8		16.0	12.0	19.7		
Change Period (Y+Rc), s		5.5		4.0	4.0	5.5		
Max Green Setting (Gmax), s		52.5		46.0	25.0	23.5		
Max Q Clear Time (g_c+I1), s		16.1		11.5	8.1	13.5		
Green Ext Time (p_c), s		1.4		0.6	0.3	0.7		

Intersection Summary	
HCM 2010 Ctrl Delay	14.5
HCM 2010 LOS	B

Notes

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	98	171	37	18	2
Future Vol, veh/h	8	98	171	37	18	2
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	9	113	197	43	21	2
Number of Lanes	1	2	2	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	3
HCM Control Delay	7	8.2	8.5
HCM LOS	A	A	A

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	90%
Vol Thru, %	0%	100%	100%	100%	61%	0%
Vol Right, %	0%	0%	0%	0%	39%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	49	49	114	94	20
LT Vol	8	0	0	0	0	18
Through Vol	0	49	49	114	57	0
RT Vol	0	0	0	0	37	2
Lane Flow Rate	9	56	56	131	108	23
Geometry Grp	7	7	7	8	8	7
Degree of Util (X)	0.013	0.073	0.046	0.172	0.133	0.036
Departure Headway (Hd)	5.162	4.695	2.958	4.737	4.427	5.638
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	685	752	1182	751	802	639
Service Time	2.955	2.488	0.749	2.507	2.197	3.338
HCM Lane V/C Ratio	0.013	0.074	0.047	0.174	0.135	0.036
HCM Control Delay	8	7.9	5.9	8.5	7.9	8.5
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0	0.2	0.1	0.6	0.5	0.1

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	86	20	1	141	16	62	6	10	5	0	5
Future Vol, veh/h	15	86	20	1	141	16	62	6	10	5	0	5
Conflicting Peds, #/hr	0	0	7	0	0	5	0	0	4	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	60	-	60	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	16	92	22	1	152	17	67	6	11	5	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	174	0	0	121	0	0	223	318	68	253	321	93
Stage 1	-	-	-	-	-	-	142	142	-	168	168	-
Stage 2	-	-	-	-	-	-	81	176	-	85	153	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	1407	-	-	1472	-	-	716	599	984	682	597	949
Stage 1	-	-	-	-	-	-	849	781	-	820	761	-
Stage 2	-	-	-	-	-	-	921	755	-	916	772	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1400	-	-	1462	-	-	699	585	974	657	583	942
Mov Cap-2 Maneuver	-	-	-	-	-	-	699	585	-	657	583	-
Stage 1	-	-	-	-	-	-	834	767	-	807	756	-
Stage 2	-	-	-	-	-	-	913	750	-	885	758	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0	10.5	9.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	699	585	974	1400	-	-	1462	-	-	774
HCM Lane V/C Ratio	0.095	0.011	0.011	0.012	-	-	0.001	-	-	0.014
HCM Control Delay (s)	10.7	11.2	8.7	7.6	-	-	7.5	-	-	9.7
HCM Lane LOS	B	B	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	85	145	25	11	13
Future Vol, veh/h	20	85	145	25	11	13
Conflicting Peds, #/hr	0	0	0	8	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	110	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	2	2	2	1	1
Mvmt Flow	22	93	159	27	12	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	194	0	-	0	272	101
Stage 1	-	-	-	-	181	-
Stage 2	-	-	-	-	91	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	1384	-	-	-	697	938
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	925	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1373	-	-	-	675	931
Mov Cap-2 Maneuver	-	-	-	-	675	-
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	918	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1373	-	-	-	793
HCM Lane V/C Ratio	0.016	-	-	-	0.033
HCM Control Delay (s)	7.7	-	-	-	9.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	77	152	96	34	18
Future Vol, veh/h	20	77	152	96	34	18
Conflicting Peds, #/hr	0	11	0	0	0	19
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	140	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	88	173	109	39	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	523	79	78	0	-	0
Stage 1	68	-	-	-	-	-
Stage 2	455	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	514	981	1520	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	639	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	438	953	1492	-	-	-
Mov Cap-2 Maneuver	438	-	-	-	-	-
Stage 1	829	-	-	-	-	-
Stage 2	627	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	4.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1492	-	438	953	-	-
HCM Lane V/C Ratio	0.116	-	0.052	0.092	-	-
HCM Control Delay (s)	7.7	-	13.7	9.2	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	0.2	0.3	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	236	0	0	108
Future Vol, veh/h	0	0	236	0	0	108
Conflicting Peds, #/hr	0	0	0	2	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	0	268	0	0	123

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	270	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	774	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	773	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	224	0	0	104
Future Vol, veh/h	0	0	224	0	0	104
Conflicting Peds, #/hr	0	0	0	2	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	140	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	0	255	0	0	118

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	375	257	0	0	257	0
Stage 1	257	-	-	-	-	-
Stage 2	118	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	630	787	-	-	1320	-
Stage 1	791	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	629	786	-	-	1317	-
Mov Cap-2 Maneuver	629	-	-	-	-	-
Stage 1	789	-	-	-	-	-
Stage 2	912	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	-	1317	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	96	48	203	90	10
Future Vol, veh/h	10	96	48	203	90	10
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	108	54	228	101	11
Number of Lanes	0	1	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	9	8.5	9.7
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	9%	0%	0%	100%	0%
Vol Thru, %	91%	100%	0%	0%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	106	48	203	90	10
LT Vol	10	0	0	90	0
Through Vol	96	48	0	0	0
RT Vol	0	0	203	0	10
Lane Flow Rate	119	54	228	101	11
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.165	0.075	0.271	0.166	0.015
Departure Headway (Hd)	4.973	4.976	4.273	5.927	4.72
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	722	722	842	605	757
Service Time	2.999	2.696	1.993	3.667	2.459
HCM Lane V/C Ratio	0.165	0.075	0.271	0.167	0.015
HCM Control Delay	9	8.1	8.6	9.9	7.5
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.6	0.2	1.1	0.6	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	0	117	2	2	4	252	872	2	0	653	60
Future Volume (veh/h)	48	0	117	2	2	4	252	872	2	0	653	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		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	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	49	0	26	2	2	1	257	890	2	0	666	57
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	91	0	79	6	6	3	310	1207	3	3	741	630
Arrive On Green	0.05	0.00	0.05	0.01	0.01	0.01	0.17	0.65	0.65	0.00	0.40	0.40
Sat Flow, veh/h	1774	0	1544	706	706	353	1774	1858	4	1774	1863	1583
Grp Volume(v), veh/h	49	0	26	5	0	0	257	0	892	0	666	57
Grp Sat Flow(s),veh/h/ln	1774	0	1544	1765	0	0	1774	0	1862	1774	1863	1583
Q Serve(g_s), s	1.4	0.0	0.8	0.1	0.0	0.0	7.2	0.0	16.6	0.0	17.3	1.2
Cycle Q Clear(g_c), s	1.4	0.0	0.8	0.1	0.0	0.0	7.2	0.0	16.6	0.0	17.3	1.2
Prop In Lane	1.00		1.00	0.40		0.20	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	91	0	79	14	0	0	310	0	1210	3	741	630
V/C Ratio(X)	0.54	0.00	0.33	0.35	0.00	0.00	0.83	0.00	0.74	0.00	0.90	0.09
Avail Cap(c_a), veh/h	757	0	659	291	0	0	379	0	1968	138	1716	1459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	23.6	25.4	0.0	0.0	20.5	0.0	6.1	0.0	14.6	9.7
Incr Delay (d2), s/veh	1.9	0.0	0.9	10.7	0.0	0.0	10.2	0.0	0.3	0.0	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.4	0.1	0.0	0.0	4.4	0.0	8.3	0.0	9.0	0.5
LnGrp Delay(d),s/veh	25.7	0.0	24.5	36.1	0.0	0.0	30.8	0.0	6.4	0.0	16.2	9.7
LnGrp LOS	C		C	D			C		A		B	A
Approach Vol, veh/h		75			5			1149			723	
Approach Delay, s/veh		25.3			36.1			11.8			15.7	
Approach LOS		C			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	39.0		6.6	13.0	26.0		5.9
Change Period (Y+Rc), s	4.0	5.5		4.0	4.0	5.5		5.5
Max Green Setting (Gmax), s	6.0	54.5		22.0	11.0	47.5		8.5
Max Q Clear Time (g_c+I1), s	10.0	18.6		3.4	9.2	19.3		2.1
Green Ext Time (p_c), s	0.0	1.9		0.1	0.0	1.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	13.9
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	16	32	8	16	24	52	662	21	31	337	27
Future Vol, veh/h	53	16	32	8	16	24	52	662	21	31	337	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	58	17	35	9	17	26	57	720	23	34	366	29

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1316	1307	381	1322	1310	733	395	0	0	744	0	0
Stage 1	449	449	-	847	847	-	-	-	-	-	-	-
Stage 2	867	858	-	475	463	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	135	160	666	133	159	421	1164	-	-	864	-	-
Stage 1	589	572	-	357	378	-	-	-	-	-	-	-
Stage 2	348	374	-	570	564	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	108	146	666	107	145	421	1164	-	-	863	-	-
Mov Cap-2 Maneuver	108	146	-	107	145	-	-	-	-	-	-	-
Stage 1	560	550	-	339	359	-	-	-	-	-	-	-
Stage 2	295	355	-	503	542	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	69.8	29.6	0.6	0.7
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1164	-	-	156	198	863	-	-
HCM Lane V/C Ratio	0.049	-	-	0.704	0.264	0.039	-	-
HCM Control Delay (s)	8.3	-	-	69.8	29.6	9.3	-	-
HCM Lane LOS	A	-	-	F	D	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	4.1	1	0.1	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	42	73	0	0	0
Future Vol, veh/h	0	42	73	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	0	48	83	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	83	0	-	0	131	83
Stage 1	-	-	-	-	83	-
Stage 2	-	-	-	-	48	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1520	-	-	-	865	979
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	977	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1520	-	-	-	865	979
Mov Cap-2 Maneuver	-	-	-	-	865	-
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	977	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1520	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	3	10	0	2	10	21	1084	2	5	728	50
Future Vol, veh/h	29	3	10	0	2	10	21	1084	2	5	728	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	3	10	0	2	10	22	1129	2	5	758	52

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1948	1943	758	1975	1994	1130	810	0	0	1131	0	0
Stage 1	768	768	-	1174	1174	-	-	-	-	-	-	-
Stage 2	1180	1175	-	801	820	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	49	65	407	46	60	248	816	-	-	618	-	-
Stage 1	394	411	-	234	266	-	-	-	-	-	-	-
Stage 2	232	265	-	378	389	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	44	63	407	42	58	248	816	-	-	618	-	-
Mov Cap-2 Maneuver	44	63	-	42	58	-	-	-	-	-	-	-
Stage 1	383	408	-	228	259	-	-	-	-	-	-	-
Stage 2	215	258	-	363	386	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	172.5	29.4	0.2	0.1
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	816	-	-	57	160	618	-	-
HCM Lane V/C Ratio	0.027	-	-	0.768	0.078	0.008	-	-
HCM Control Delay (s)	9.5	-	-	172.5	29.4	10.9	-	-
HCM Lane LOS	A	-	-	F	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	3.3	0.3	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	100	13	9	134	515	10	543	7	346	352	15
Future Volume (veh/h)	20	100	13	9	134	515	10	543	7	346	352	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	1	0	0	2	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
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	1976	1937	1976	1976	1937	1976	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	21	105	11	9	141	440	11	572	5	364	371	12
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	86	405	39	40	153	458	2	427	3	487	501	13
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.25	0.25	0.25	0.23	0.23	0.23
Sat Flow, veh/h	128	1178	114	9	418	1253	36	1880	16	1774	1794	58
Grp Volume(v), veh/h	137	0	0	590	0	0	588	0	0	364	0	383
Grp Sat Flow(s),veh/h/ln	1420	0	0	1680	0	0	1933	0	0	1774	0	1852
Q Serve(g_s), s	0.0	0.0	0.0	8.8	0.0	0.0	22.5	0.0	0.0	18.0	0.0	18.2
Cycle Q Clear(g_c), s	4.4	0.0	0.0	30.9	0.0	0.0	22.5	0.0	0.0	18.0	0.0	18.2
Prop In Lane	0.15		0.08	0.02		0.75	0.02		0.01	1.00		0.03
Lane Grp Cap(c), veh/h	530	0	0	650	0	0	396	0	0	487	0	436
V/C Ratio(X)	0.26	0.00	0.00	0.91	0.00	0.00	1.49	0.00	0.00	0.75	0.00	0.88
Avail Cap(c_a), veh/h	674	0	0	770	0	0	478	0	0	673	0	703
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.9	0.0	0.0	31.3	0.0	0.0	43.8	0.0	0.0	33.1	0.0	34.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	12.0	0.0	0.0	231.4	0.0	0.0	1.7	0.0	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	0.0	0.0	1.2
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.0	18.2	0.0	0.0	38.4	0.0	0.0	9.4	0.0	10.3
LnGrp Delay(d),s/veh	22.0	0.0	0.0	43.3	0.0	0.0	281.2	0.0	0.0	34.8	0.0	39.7
LnGrp LOS	C			D			F			C		D
Approach Vol, veh/h		137			590			588			747	
Approach Delay, s/veh		22.0			43.3			281.2			37.3	
Approach LOS		C			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		27.0		38.3		25.6		38.3
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		22.5		39.5		34.5		39.5
Max Q Clear Time (g_c+I1), s		24.5		6.4		20.2		32.9
Green Ext Time (p_c), s		0.0		0.3		0.7		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	107.6
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
24: N McDowell Blvd & Old Redwood Hwy

04/02/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	631	479	87	525	6	697	43	194	13	77	246
Future Volume (veh/h)	72	631	479	87	525	6	697	43	194	13	77	246
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	80	701	0	97	583	4	731	0	94	14	86	125
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	1.00	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	1550	1056	132	1585	11	813	0	356	195	205	171
Arrive On Green	0.15	0.88	0.00	0.07	0.44	0.44	0.23	0.00	0.23	0.11	0.11	0.11
Sat Flow, veh/h	1774	3539	1583	1774	3603	25	3548	0	1555	1774	1863	1557
Grp Volume(v), veh/h	80	701	0	97	286	301	731	0	94	14	86	125
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1858	1774	0	1555	1774	1863	1557
Q Serve(g_s), s	5.5	5.3	0.0	7.0	14.1	14.1	26.0	0.0	6.4	0.9	5.6	10.1
Cycle Q Clear(g_c), s	5.5	5.3	0.0	7.0	14.1	14.1	26.0	0.0	6.4	0.9	5.6	10.1
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	129	1550	1056	132	779	817	813	0	356	195	205	171
V/C Ratio(X)	0.62	0.45	0.00	0.73	0.37	0.37	0.90	0.00	0.26	0.07	0.42	0.73
Avail Cap(c_a), veh/h	150	1550	1056	150	779	817	1054	0	462	412	433	362
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	4.9	0.0	58.9	24.3	24.3	48.7	0.0	41.1	51.9	54.0	56.0
Incr Delay (d2), s/veh	2.9	0.9	0.0	11.9	1.3	1.3	7.4	0.0	0.1	0.1	0.5	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.5	0.0	3.9	7.1	7.5	13.6	0.0	2.8	0.5	2.9	4.5
LnGrp Delay(d),s/veh	56.8	5.7	0.0	70.7	25.7	25.6	56.1	0.0	41.3	52.0	54.5	58.2
LnGrp LOS	E	A		E	C	C	E		D	D	D	E
Approach Vol, veh/h		781			684			825			225	
Approach Delay, s/veh		11.0			32.0			54.4			56.4	
Approach LOS		B			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.7	62.0		19.1	13.4	62.3		35.2
Change Period (Y+Rc), s	4.0	5.1		* 4.8	4.0	* 5.1		5.4
Max Green Setting (Gmax), s	10.0	30.9		* 30	11.0	* 31		38.6
Max Q Clear Time (g_c+I1), s	9.0	7.3		12.1	7.5	16.1		28.0
Green Ext Time (p_c), s	0.0	7.7		0.5	0.0	4.7		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	35.0
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
25: US 101 NB Off-ramp & Old Redwood Hwy

04/02/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	922	596	0	1483	95	258
Future Volume (veh/h)	922	596	0	1483	95	258
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	981	0	0	1578	101	161
Adj No. of Lanes	2	1	0	2	2	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2668	1194	0	2668	328	266
Arrive On Green	0.75	0.00	0.00	1.00	0.10	0.10
Sat Flow, veh/h	3632	1583	0	3725	3442	2787
Grp Volume(v), veh/h	981	0	0	1578	101	161
Grp Sat Flow(s),veh/h/ln	1770	1583	0	1770	1721	1393
Q Serve(g_s), s	6.1	0.0	0.0	0.0	1.8	3.6
Cycle Q Clear(g_c), s	6.1	0.0	0.0	0.0	1.8	3.6
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2668	1194	0	2668	328	266
V/C Ratio(X)	0.37	0.00	0.00	0.59	0.31	0.61
Avail Cap(c_a), veh/h	2668	1194	0	2668	810	656
HCM Platoon Ratio	1.00	1.00	1.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.76	1.00	1.00
Uniform Delay (d), s/veh	2.7	0.0	0.0	0.0	27.4	28.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.7	0.5	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	0.0	0.3	0.9	1.5
LnGrp Delay(d),s/veh	3.1	0.0	0.0	0.7	27.9	30.4
LnGrp LOS	A			A	C	C
Approach Vol, veh/h	981			1578	262	
Approach Delay, s/veh	3.1			0.7	29.5	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		54.1				54.1		10.9
Change Period (Y+Rc), s		5.1				5.1		4.7
Max Green Setting (Gmax), s		39.9				39.9		15.3
Max Q Clear Time (g_c+I1), s		8.1				2.0		5.6
Green Ext Time (p_c), s		11.3				22.9		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	4.2
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1: Snyder Ln & Rohnert Park Expwy

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	259	360	50	284	134	320	314	36	80	366	177
Future Volume (veh/h)	223	259	360	50	284	134	320	314	36	80	366	177
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		0.98	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	256	298	397	57	326	146	368	361	39	92	421	193
Adj No. of Lanes	2	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	538	885	664	195	722	531	585	881	560	463	756	576
Arrive On Green	0.16	0.25	0.25	0.11	0.20	0.20	0.17	0.25	0.25	0.13	0.21	0.21
Sat Flow, veh/h	3442	3539	1580	1774	3539	1556	3442	3539	1548	3442	3539	1538
Grp Volume(v), veh/h	256	298	397	57	326	146	368	361	39	92	421	193
Grp Sat Flow(s),veh/h/ln	1721	1770	1580	1774	1770	1556	1721	1770	1548	1721	1770	1538
Q Serve(g_s), s	5.2	5.3	14.9	2.3	6.2	5.2	7.6	6.5	1.3	1.8	8.1	6.9
Cycle Q Clear(g_c), s	5.2	5.3	14.9	2.3	6.2	5.2	7.6	6.5	1.3	1.8	8.1	6.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	538	885	664	195	722	531	585	881	560	463	756	576
V/C Ratio(X)	0.48	0.34	0.60	0.29	0.45	0.28	0.63	0.41	0.07	0.20	0.56	0.34
Avail Cap(c_a), veh/h	675	2096	1204	348	2091	1132	675	2091	1089	675	2091	1156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	23.5	17.2	31.3	26.7	18.5	29.5	24.0	16.1	29.4	26.8	17.4
Incr Delay (d2), s/veh	0.2	0.1	0.3	0.3	0.2	0.1	0.9	0.1	0.0	0.1	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.6	6.5	1.1	3.0	2.3	3.7	3.2	0.5	0.9	4.0	2.9
LnGrp Delay(d),s/veh	29.7	23.6	17.5	31.6	26.9	18.6	30.4	24.1	16.1	29.5	27.1	17.5
LnGrp LOS	C	C	B	C	C	B	C	C	B	C	C	B
Approach Vol, veh/h		951			529			768			706	
Approach Delay, s/veh		22.7			25.1			26.7			24.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	24.8	12.4	24.9	17.0	22.2	15.9	21.4
Change Period (Y+Rc), s	4.0	5.8	4.0	* 5.8	4.0	5.8	4.0	* 5.8
Max Green Setting (Gmax), s	15.0	45.2	15.0	* 45	15.0	45.2	15.0	* 45
Max Q Clear Time (g_c+I1), s	3.8	8.5	4.3	16.9	9.6	10.1	7.2	8.2
Green Ext Time (p_c), s	0.0	0.8	0.0	0.8	0.2	1.0	0.1	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
2: US 101 SB Ramps & Gravenstein Hwy

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	786	286	128	811	0	0	0	0	713	3	224
Future Volume (veh/h)	0	786	286	128	811	0	0	0	0	713	3	224
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	8	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1937	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	802	141	131	828	0				728	3	131
Adj No. of Lanes	0	2	1	1	2	0				2	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1335	611	428	2335	0				890	47	369
Arrive On Green	0.00	0.38	0.38	0.33	0.88	0.00				0.25	0.25	0.25
Sat Flow, veh/h	0	3632	1621	1774	3632	0				3442	36	1553
Grp Volume(v), veh/h	0	802	141	131	828	0				728	0	134
Grp Sat Flow(s),veh/h/ln	0	1770	1621	1774	1770	0				1721	0	1589
Q Serve(g_s), s	0.0	20.1	6.5	6.1	4.3	0.0				22.0	0.0	7.6
Cycle Q Clear(g_c), s	0.0	20.1	6.5	6.1	4.3	0.0				22.0	0.0	7.6
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.98
Lane Grp Cap(c), veh/h	0	1335	611	428	2335	0				890	0	416
V/C Ratio(X)	0.00	0.60	0.23	0.31	0.35	0.00				0.82	0.00	0.32
Avail Cap(c_a), veh/h	0	1335	611	437	2352	0				1111	0	513
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.58	0.58	0.98	0.98	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	27.6	23.4	30.4	2.6	0.0				38.4	0.0	33.7
Incr Delay (d2), s/veh	0.0	1.2	0.5	0.1	0.4	0.0				3.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	3.9
%ile BackOfQ(50%),veh/ln	0.0	10.0	3.0	3.0	2.2	0.0				10.7	0.0	4.8
LnGrp Delay(d),s/veh	0.0	28.7	23.9	30.6	3.0	0.0				41.6	0.0	37.8
LnGrp LOS		C	C	C	A					D		D
Approach Vol, veh/h		943			959						862	
Approach Delay, s/veh		28.0			6.8						41.0	
Approach LOS		C			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	31.6	46.0		32.4		77.6		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	19.5	41.5		35.5		65.5		
Max Q Clear Time (g_c+I1), s	18.1	22.1		24.0		6.3		
Green Ext Time (p_c), s	0.1	5.5		3.9		5.8		

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
3: US 101 NB Off-ramp & Gravenstein Hwy

07/30/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1495	0	0	629	310	279
Future Volume (veh/h)	1495	0	0	629	310	279
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863
Adj Flow Rate, veh/h	1541	0	0	648	320	245
Adj No. of Lanes	2	0	0	3	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	2544	0	0	3655	686	316
Arrive On Green	1.00	0.00	0.00	0.72	0.20	0.20
Sat Flow, veh/h	3725	0	0	5421	3442	1583
Grp Volume(v), veh/h	1541	0	0	648	320	245
Grp Sat Flow(s),veh/h/ln	1770	0	0	1695	1721	1583
Q Serve(g_s), s	0.0	0.0	0.0	4.5	9.0	16.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	4.5	9.0	16.1
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2544	0	0	3655	686	316
V/C Ratio(X)	0.61	0.00	0.00	0.18	0.47	0.78
Avail Cap(c_a), veh/h	2544	0	0	3655	1048	482
HCM Platoon Ratio	2.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.00	0.00	0.82	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	5.0	38.9	41.7
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.1	0.5	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	2.1	4.4	7.5
LnGrp Delay(d),s/veh	0.8	0.0	0.0	5.1	39.4	46.0
LnGrp LOS	A			A	D	D
Approach Vol, veh/h	1541			648	565	
Approach Delay, s/veh	0.8			5.1	42.3	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.6				83.6		26.4
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		67.5				67.5		33.5
Max Q Clear Time (g_c+I1), s		2.0				6.5		18.1
Green Ext Time (p_c), s		35.7				9.2		3.8

Intersection Summary	
HCM 2010 Ctrl Delay	10.3
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Old Redwood Hwy & Gravenstein Hwy/Gravenstein Way

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	757	136	906	64	50	65	296	623	28	28	185	222
Future Volume (veh/h)	757	136	906	64	50	65	296	623	28	28	185	222
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	3	0	0	0	0	0	0	3	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	780	140	0	66	52	51	305	642	22	29	191	229
Adj No. of Lanes	2	1	1	1	1	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	986	534	454	178	85	83	407	821	27	247	260	675
Arrive On Green	0.29	0.29	0.00	0.10	0.10	0.10	0.23	0.23	0.23	0.14	0.14	0.14
Sat Flow, veh/h	3442	1863	1583	1774	846	830	1774	3574	122	1774	1863	1583
Grp Volume(v), veh/h	780	140	0	66	0	103	305	334	330	29	191	229
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	0	1675	1774	1863	1834	1774	1863	1583
Q Serve(g_s), s	14.9	4.1	0.0	2.5	0.0	4.2	11.4	12.0	12.1	1.0	7.0	6.9
Cycle Q Clear(g_c), s	14.9	4.1	0.0	2.5	0.0	4.2	11.4	12.0	12.1	1.0	7.0	6.9
Prop In Lane	1.00		1.00	1.00		0.50	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	986	534	454	178	0	169	407	427	421	247	260	675
V/C Ratio(X)	0.79	0.26	0.00	0.37	0.00	0.61	0.75	0.78	0.78	0.12	0.74	0.34
Avail Cap(c_a), veh/h	1183	640	544	597	0	564	473	496	489	622	653	1007
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.7	19.7	0.0	30.1	0.0	30.9	25.7	26.1	26.1	27.0	29.6	13.8
Incr Delay (d2), s/veh	2.5	0.1	0.0	0.5	0.0	1.3	4.4	5.7	5.9	0.1	1.5	0.1
Initial Q Delay(d3),s/veh	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	2.2	0.0	1.2	0.0	2.0	6.1	7.0	7.0	0.5	3.7	4.5
LnGrp Delay(d),s/veh	26.5	19.8	0.0	30.6	0.0	32.2	30.2	32.2	32.4	27.1	31.1	13.9
LnGrp LOS	C	B		C		C	C	C	C	C	C	B
Approach Vol, veh/h		920			169			969			449	
Approach Delay, s/veh		25.5			31.6			31.6			22.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		24.9		14.5		11.2		20.8
Change Period (Y+Rc), s		4.5		4.5		4.0		4.5
Max Green Setting (Gmax), s		24.5		25.0		24.0		19.0
Max Q Clear Time (g_c+I1), s		16.9		9.0		6.2		14.1
Green Ext Time (p_c), s		3.2		1.0		0.2		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	27.7
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave 07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	301	10	28	224	399	14	372	12	535	418	93
Future Volume (veh/h)	93	301	10	28	224	399	14	372	12	535	418	93
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	4	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.95	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	96	310	8	29	231	365	14	384	11	552	431	91
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	588	481	40	493	423	23	708	20	471	846	700
Arrive On Green	0.06	0.32	0.32	0.02	0.28	0.28	0.01	0.20	0.20	0.27	0.45	0.45
Sat Flow, veh/h	1774	1863	1526	1774	1770	1519	1774	3508	100	1774	1863	1542
Grp Volume(v), veh/h	96	310	8	29	231	365	14	193	202	552	431	91
Grp Sat Flow(s),veh/h/ln	1774	1863	1526	1774	1770	1519	1774	1770	1838	1774	1863	1542
Q Serve(g_s), s	5.0	12.6	0.3	1.5	10.0	21.1	0.7	9.0	9.1	24.5	15.2	3.2
Cycle Q Clear(g_c), s	5.0	12.6	0.3	1.5	10.0	21.1	0.7	9.0	9.1	24.5	15.2	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	106	588	481	40	493	423	23	357	371	471	846	700
V/C Ratio(X)	0.91	0.53	0.02	0.72	0.47	0.86	0.60	0.54	0.54	1.17	0.51	0.13
Avail Cap(c_a), veh/h	106	595	487	115	575	493	77	613	637	471	1059	876
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	26.0	21.8	44.8	27.6	31.6	45.3	33.0	33.1	33.9	17.9	14.6
Incr Delay (d2), s/veh	58.3	0.4	0.0	8.6	0.3	11.7	9.0	0.5	0.5	98.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.6	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	6.5	0.1	0.8	4.9	10.2	0.4	4.4	4.6	28.8	7.8	1.4
LnGrp Delay(d),s/veh	101.5	26.4	21.8	53.4	27.9	43.3	54.4	33.5	33.5	158.0	18.1	14.7
LnGrp LOS	F	C	C	D	C	D	D	C	C	F	B	B
Approach Vol, veh/h		414			625			409			1074	
Approach Delay, s/veh		43.7			38.1			34.2			89.7	
Approach LOS		D			D			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	33.6	5.7	46.4	10.0	30.2	29.0	23.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.6	29.5	4.0	52.5	5.5	30.0	24.5	32.0
Max Q Clear Time (g_c+I1), s	3.5	14.6	2.7	17.2	7.0	23.1	26.5	11.1
Green Ext Time (p_c), s	0.0	0.6	0.0	0.9	0.0	1.0	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	60.4
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave 07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	301	10	28	224	399	14	372	12	535	418	93
Future Volume (veh/h)	93	301	10	28	224	399	14	372	12	535	418	93
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	4	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.95	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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	96	310	8	29	231	365	14	384	11	552	431	91
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	487	398	40	404	850	23	697	20	587	962	798
Arrive On Green	0.07	0.26	0.26	0.02	0.22	0.22	0.01	0.20	0.20	0.33	0.51	0.51
Sat Flow, veh/h	1774	1863	1521	1774	1863	1506	1774	3508	100	1774	1863	1545
Grp Volume(v), veh/h	96	310	8	29	231	365	14	193	202	552	431	91
Grp Sat Flow(s),veh/h/ln	1774	1863	1521	1774	1863	1506	1774	1770	1838	1774	1863	1545
Q Serve(g_s), s	5.1	14.1	0.4	1.6	10.6	13.9	0.8	9.4	9.4	29.1	14.0	2.9
Cycle Q Clear(g_c), s	5.1	14.1	0.4	1.6	10.6	13.9	0.8	9.4	9.4	29.1	14.0	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	120	487	398	40	404	850	23	352	365	587	962	798
V/C Ratio(X)	0.80	0.64	0.02	0.73	0.57	0.43	0.61	0.55	0.55	0.94	0.45	0.11
Avail Cap(c_a), veh/h	121	629	514	78	585	990	74	592	615	622	1199	994
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	31.5	26.4	46.9	33.8	13.0	47.4	34.8	34.8	31.8	14.7	12.0
Incr Delay (d2), s/veh	28.9	0.5	0.0	9.1	0.5	0.1	9.2	0.5	0.5	21.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	7.4	0.2	0.9	5.6	5.8	0.4	4.7	4.9	19.3	7.2	1.2
LnGrp Delay(d),s/veh	73.2	32.1	26.4	56.0	34.3	13.2	56.6	35.3	35.3	58.9	14.8	12.0
LnGrp LOS	E	C	C	E	C	B	E	D	D	E	B	B
Approach Vol, veh/h		414			625			409			1074	
Approach Delay, s/veh		41.5			23.0			36.0			37.2	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	29.7	5.7	53.5	11.0	25.3	35.7	23.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	4.2	32.3	4.0	61.5	6.5	30.0	33.5	32.0
Max Q Clear Time (g_c+I1), s	3.6	16.1	2.8	16.0	7.1	15.9	31.1	11.4
Green Ext Time (p_c), s	0.0	0.6	0.0	0.9	0.0	0.7	0.1	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	34.2
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	69.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	938	165	75	616	1	151	0	82	9	0	14
Future Vol, veh/h	1	938	165	75	616	1	151	0	82	9	0	14
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	977	172	78	642	1	157	0	85	9	0	15
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	106.7	29.4	21.8	12.4
HCM LOS	F	D	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	65%	100%	0%	0%	100%	0%	0%	39%
Vol Thru, %	0%	0%	100%	65%	0%	100%	100%	0%
Vol Right, %	35%	0%	0%	35%	0%	0%	0%	61%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	233	1	625	478	75	411	206	23
LT Vol	151	1	0	0	75	0	0	9
Through Vol	0	0	625	313	0	411	205	0
RT Vol	82	0	0	165	0	0	1	14
Lane Flow Rate	243	1	651	498	78	428	215	24
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.56	0.002	1.254	0.923	0.166	0.848	0.426	0.058
Departure Headway (Hd)	8.63	7.442	6.929	6.681	7.986	7.473	7.469	9.147
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	420	480	528	542	452	488	486	394
Service Time	6.33	5.205	4.692	4.444	5.686	5.173	5.169	6.847
HCM Lane V/C Ratio	0.579	0.002	1.233	0.919	0.173	0.877	0.442	0.061
HCM Control Delay	21.8	10.2	151.8	47.8	12.3	39.4	15.6	12.4
HCM Lane LOS	C	B	F	E	B	E	C	B
HCM 95th-tile Q	3.3	0	25.7	11.3	0.6	8.6	2.1	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	938	165	75	616	1	151	0	82	9	0	14
Future Volume (veh/h)	1	938	165	75	616	1	151	0	82	9	0	14
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.96	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1976	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	1	977	151	78	642	1	157	0	64	9	0	10
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	527	1539	238	352	1827	3	399	19	95	285	49	193
Arrive On Green	0.50	0.50	0.50	0.50	0.50	0.50	0.22	0.00	0.22	0.22	0.00	0.22
Sat Flow, veh/h	778	3054	472	496	3625	6	951	86	423	557	219	863
Grp Volume(v), veh/h	1	566	562	78	313	330	221	0	0	19	0	0
Grp Sat Flow(s),veh/h/ln	778	1770	1756	496	1770	1861	1459	0	0	1639	0	0
Q Serve(g_s), s	0.0	7.7	7.7	4.5	3.5	3.5	4.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.6	7.7	7.7	12.2	3.5	3.5	4.5	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00		0.27	1.00		0.00	0.71		0.29	0.47		0.53
Lane Grp Cap(c), veh/h	527	892	885	352	892	938	513	0	0	527	0	0
V/C Ratio(X)	0.00	0.63	0.64	0.22	0.35	0.35	0.43	0.00	0.00	0.04	0.00	0.00
Avail Cap(c_a), veh/h	1559	3238	3213	1009	3238	3406	1516	0	0	1536	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.0	6.0	6.0	10.4	4.9	4.9	11.7	0.0	0.0	10.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.3	0.1	0.1	0.1	0.2	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	3.7	3.7	0.6	1.7	1.8	1.9	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	6.0	6.3	6.3	10.6	5.0	5.0	11.9	0.0	0.0	10.1	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	B			B		
Approach Vol, veh/h		1129			721			221			19	
Approach Delay, s/veh		6.3			5.6			11.9			10.1	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		21.2		11.9		21.2		11.9
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		60.5		30.5		60.5		30.5
Max Q Clear Time (g_c+I1), s		9.7		2.3		14.2		6.5
Green Ext Time (p_c), s		2.9		0.0		1.8		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	6.7
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	449	343	125	582	52	219	132	97	43	201	87
Future Volume (veh/h)	121	449	343	125	582	52	219	132	97	43	201	87
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	2	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.94	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	130	483	337	134	626	45	235	142	77	46	216	56
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	190	572	397	212	1052	75	273	446	369	202	282	73
Arrive On Green	0.11	0.29	0.29	0.12	0.31	0.31	0.15	0.24	0.24	0.11	0.20	0.20
Sat Flow, veh/h	1774	1970	1370	1774	3334	239	1774	1863	1542	1774	1420	368
Grp Volume(v), veh/h	130	434	386	134	332	339	235	142	77	46	0	272
Grp Sat Flow(s),veh/h/ln	1774	1770	1571	1774	1770	1804	1774	1863	1542	1774	0	1788
Q Serve(g_s), s	5.6	18.2	18.3	5.7	12.5	12.6	10.2	5.0	3.2	1.9	0.0	11.4
Cycle Q Clear(g_c), s	5.6	18.2	18.3	5.7	12.5	12.6	10.2	5.0	3.2	1.9	0.0	11.4
Prop In Lane	1.00		0.87	1.00		0.13	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	190	513	456	212	558	569	273	446	369	202	0	356
V/C Ratio(X)	0.68	0.84	0.85	0.63	0.59	0.60	0.86	0.32	0.21	0.23	0.00	0.77
Avail Cap(c_a), veh/h	224	651	578	224	673	686	336	756	625	224	0	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.1	26.4	26.5	33.2	22.9	22.9	32.7	24.8	24.1	31.9	0.0	30.0
Incr Delay (d2), s/veh	4.5	6.7	7.7	3.7	0.4	0.4	14.7	0.2	0.1	0.2	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	9.9	8.9	3.0	6.3	6.4	6.1	2.6	1.4	0.9	0.0	5.7
LnGrp Delay(d),s/veh	38.6	33.1	34.2	36.9	23.4	23.4	47.3	25.0	24.2	32.2	0.0	31.3
LnGrp LOS	D	C	C	D	C	C	D	C	C	C		C
Approach Vol, veh/h		950			805			454			318	
Approach Delay, s/veh		34.3			25.6			36.4			31.4	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	27.8	16.2	20.6	12.5	29.8	13.0	23.8
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	10.0	29.1	15.0	27.1	10.0	30.1	10.0	32.1
Max Q Clear Time (g_c+I1), s	7.7	20.3	12.2	13.4	7.6	14.6	3.9	7.0
Green Ext Time (p_c), s	0.0	1.5	0.0	0.5	0.0	1.3	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	31.6
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	449	343	125	582	52	219	132	97	43	201	87
Future Volume (veh/h)	121	449	343	125	582	52	219	132	97	43	201	87
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	2	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.94	1.00		0.97	0.99		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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	130	483	337	134	626	45	235	142	77	46	216	56
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	582	404	222	1074	76	387	391	323	475	286	74
Arrive On Green	0.11	0.29	0.29	0.13	0.32	0.32	0.13	0.21	0.21	0.12	0.20	0.20
Sat Flow, veh/h	1774	1971	1370	1774	3334	239	1774	1863	1538	1774	1420	368
Grp Volume(v), veh/h	130	434	386	134	332	339	235	142	77	46	0	272
Grp Sat Flow(s),veh/h/ln	1774	1770	1571	1774	1770	1804	1774	1863	1538	1774	0	1788
Q Serve(g_s), s	5.3	17.2	17.3	5.4	11.8	11.8	7.7	4.9	3.1	1.4	0.0	10.8
Cycle Q Clear(g_c), s	5.3	17.2	17.3	5.4	11.8	11.8	7.7	4.9	3.1	1.4	0.0	10.8
Prop In Lane	1.00		0.87	1.00		0.13	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	198	522	464	222	569	580	387	391	323	475	0	360
V/C Ratio(X)	0.66	0.83	0.83	0.60	0.58	0.58	0.61	0.36	0.24	0.10	0.00	0.76
Avail Cap(c_a), veh/h	307	736	653	284	736	750	420	720	595	475	0	643
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.0	24.7	24.8	31.1	21.4	21.4	20.4	25.4	24.7	17.9	0.0	28.3
Incr Delay (d2), s/veh	1.4	3.9	4.5	1.0	0.4	0.3	1.4	0.2	0.1	0.0	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	8.9	8.0	2.7	5.9	6.0	3.9	2.6	1.3	0.7	0.0	5.4
LnGrp Delay(d),s/veh	33.4	28.6	29.3	32.1	21.8	21.8	21.8	25.6	24.8	17.9	0.0	29.5
LnGrp LOS	C	C	C	C	C	C	C	C	C	B		C
Approach Vol, veh/h		950			805			454			318	
Approach Delay, s/veh		29.5			23.5			23.5			27.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	27.0	13.6	20.0	12.4	29.0	13.0	20.6
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	12.6	31.2	11.0	27.0	13.0	31.2	9.0	29.0
Max Q Clear Time (g_c+I1), s	7.4	19.3	9.7	12.8	7.3	13.8	3.4	6.9
Green Ext Time (p_c), s	0.0	1.6	0.0	0.5	0.0	1.3	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	26.3
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	231	286	69	12	456	456	48	155	11	280	227	271
Future Volume (veh/h)	231	286	69	12	456	456	48	155	11	280	227	271
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	238	295	41	12	470	265	49	160	7	289	234	148
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	293	1213	681	48	725	612	175	591	26	335	486	664
Arrive On Green	0.16	0.34	0.34	0.03	0.20	0.20	0.10	0.17	0.17	0.19	0.26	0.26
Sat Flow, veh/h	1774	3539	1530	1774	3539	1531	1774	3452	150	1774	1863	1544
Grp Volume(v), veh/h	238	295	41	12	470	265	49	82	85	289	234	148
Grp Sat Flow(s),veh/h/ln	1774	1770	1530	1774	1770	1531	1774	1770	1832	1774	1863	1544
Q Serve(g_s), s	8.5	3.9	1.0	0.4	8.0	8.4	1.7	2.6	2.7	10.4	7.0	4.0
Cycle Q Clear(g_c), s	8.5	3.9	1.0	0.4	8.0	8.4	1.7	2.6	2.7	10.4	7.0	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	293	1213	681	48	725	612	175	303	314	335	486	664
V/C Ratio(X)	0.81	0.24	0.06	0.25	0.65	0.43	0.28	0.27	0.27	0.86	0.48	0.22
Avail Cap(c_a), veh/h	539	2048	1042	404	1779	1068	539	782	810	539	823	943
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	15.5	10.5	31.4	24.0	14.6	27.5	23.7	23.7	25.9	20.6	12.0
Incr Delay (d2), s/veh	2.1	0.0	0.0	1.0	0.4	0.2	0.3	0.2	0.2	4.7	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	1.9	0.4	0.2	4.0	3.6	0.8	1.3	1.4	5.5	3.6	1.7
LnGrp Delay(d),s/veh	28.6	15.6	10.6	32.4	24.4	14.8	27.8	23.9	23.9	30.6	20.8	12.1
LnGrp LOS	C	B	B	C	C	B	C	C	C	C	C	B
Approach Vol, veh/h		574			747			216			671	
Approach Delay, s/veh		20.6			21.1			24.8			23.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	27.5	10.5	22.1	14.9	18.4	16.4	16.2
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	5.0	38.1	20.0	29.1	20.0	33.1	20.0	29.1
Max Q Clear Time (g_c+I1), s	2.4	5.9	3.7	9.0	10.5	10.4	12.4	4.7
Green Ext Time (p_c), s	0.0	0.7	0.0	0.5	0.1	1.2	0.1	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	21.9
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	410	107	177	490	16	169	48	141	69	45	259
Future Volume (veh/h)	148	410	107	177	490	16	169	48	141	69	45	259
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	156	432	90	186	516	16	178	51	84	73	47	153
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	693	143	223	886	27	355	373	304	239	154	497
Arrive On Green	0.11	0.24	0.24	0.13	0.25	0.25	0.20	0.20	0.20	0.22	0.22	0.22
Sat Flow, veh/h	1774	2920	604	1774	3502	108	1774	1863	1521	1100	708	1483
Grp Volume(v), veh/h	156	260	262	186	260	272	178	51	84	120	0	153
Grp Sat Flow(s),veh/h/ln	1774	1770	1754	1774	1770	1840	1774	1863	1521	1808	0	1483
Q Serve(g_s), s	7.6	11.6	11.8	9.0	11.3	11.4	7.9	2.0	4.1	4.9	0.0	6.8
Cycle Q Clear(g_c), s	7.6	11.6	11.8	9.0	11.3	11.4	7.9	2.0	4.1	4.9	0.0	6.8
Prop In Lane	1.00		0.34	1.00		0.06	1.00		1.00	0.61		1.00
Lane Grp Cap(c), veh/h	195	420	416	223	448	466	355	373	304	393	0	497
V/C Ratio(X)	0.80	0.62	0.63	0.83	0.58	0.58	0.50	0.14	0.28	0.30	0.00	0.31
Avail Cap(c_a), veh/h	504	1007	999	302	806	839	621	652	532	633	0	693
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.2	30.0	30.1	37.6	28.8	28.8	31.3	28.9	29.8	28.8	0.0	22.2
Incr Delay (d2), s/veh	7.4	3.2	3.3	13.6	2.6	2.5	2.3	0.4	1.0	0.9	0.0	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	4.1	6.0	6.0	5.2	5.8	6.1	4.1	1.1	1.8	2.5	0.0	2.9
LnGrp Delay(d),s/veh	45.6	33.2	33.4	51.1	31.3	31.3	33.6	29.3	30.8	29.8	0.0	22.9
LnGrp LOS	D	C	C	D	C	C	C	C	C	C		C
Approach Vol, veh/h		678			718			313			273	
Approach Delay, s/veh		36.1			36.4			32.2			25.9	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.1	25.8		24.4	13.7	27.2		22.8
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		5.2
Max Green Setting (Gmax), s	5.0	50.1		* 31	25.0	40.1		30.8
Max Q Clear Time (g_c+I1), s	11.0	13.8		8.8	9.6	13.4		9.9
Green Ext Time (p_c), s	0.2	6.8		2.5	0.3	6.2		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	34.2
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

07/30/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	212	288	230	730	480	235
Future Volume (veh/h)	212	288	230	730	480	235
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.98	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1976	1863	1863	1863	1863
Adj Flow Rate, veh/h	219	159	237	753	495	174
Adj No. of Lanes	0	0	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	259	188	297	1030	570	474
Arrive On Green	0.26	0.26	0.17	0.55	0.31	0.31
Sat Flow, veh/h	1005	730	1774	1863	1863	1550
Grp Volume(v), veh/h	379	0	237	753	495	174
Grp Sat Flow(s),veh/h/ln	1739	0	1774	1863	1863	1550
Q Serve(g_s), s	10.4	0.0	6.4	15.2	12.6	4.4
Cycle Q Clear(g_c), s	10.4	0.0	6.4	15.2	12.6	4.4
Prop In Lane	0.58	0.42	1.00			1.00
Lane Grp Cap(c), veh/h	448	0	297	1030	570	474
V/C Ratio(X)	0.85	0.00	0.80	0.73	0.87	0.37
Avail Cap(c_a), veh/h	1595	0	884	1949	873	726
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.7	0.0	20.1	8.4	16.5	13.6
Incr Delay (d2), s/veh	1.7	0.0	1.9	0.4	4.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	3.3	7.8	7.1	1.9
LnGrp Delay(d),s/veh	19.4	0.0	22.0	8.8	20.4	13.8
LnGrp LOS	B		C	A	C	B
Approach Vol, veh/h	379			990	669	
Approach Delay, s/veh	19.4			11.9	18.7	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		33.2		16.9	12.4	20.9		
Change Period (Y+Rc), s		5.5		4.0	4.0	5.5		
Max Green Setting (Gmax), s		52.5		46.0	25.0	23.5		
Max Q Clear Time (g_c+I1), s		17.2		12.4	8.4	14.6		
Green Ext Time (p_c), s		1.4		0.6	0.3	0.8		

Intersection Summary	
HCM 2010 Ctrl Delay	15.5
HCM 2010 LOS	B

Notes

HCM 2010 AWSC
12: Camino Colegio & Mitchell Dr

07/30/2019

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	153	174	56	183	42	148	23	45	24	31	2
Future Vol, veh/h	8	153	174	56	183	42	148	23	45	24	31	2
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	2	2	2	2	0	2	2	2	0	2	0
Mvmt Flow	9	176	200	64	210	48	170	26	52	28	36	2
Number of Lanes	1	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	3
HCM Control Delay	11.6	12.3	15.2	11
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	69%	100%	0%	0%	38%	0%	42%
Vol Thru, %	11%	0%	100%	23%	62%	69%	54%
Vol Right, %	21%	0%	0%	77%	0%	31%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	216	8	102	225	148	134	57
LT Vol	148	8	0	0	56	0	24
Through Vol	23	0	102	51	92	92	31
RT Vol	45	0	0	174	0	42	2
Lane Flow Rate	248	9	117	259	170	153	66
Geometry Grp	7	7	7	7	8	8	7
Degree of Util (X)	0.464	0.017	0.201	0.403	0.322	0.274	0.129
Departure Headway (Hd)	6.725	6.639	6.165	5.614	6.839	6.421	7.107
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	534	537	580	639	524	557	502
Service Time	4.487	4.401	3.927	3.376	4.61	4.191	4.889
HCM Lane V/C Ratio	0.464	0.017	0.202	0.405	0.324	0.275	0.131
HCM Control Delay	15.2	9.5	10.5	12.2	12.9	11.6	11
HCM Lane LOS	C	A	B	B	B	B	B
HCM 95th-tile Q	2.4	0.1	0.7	1.9	1.4	1.1	0.4

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	137	65	31	195	17	69	17	28	6	13	17
Future Vol, veh/h	25	137	65	31	195	17	69	17	28	6	13	17
Conflicting Peds, #/hr	0	0	7	0	0	5	0	0	4	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	27	147	70	33	210	18	74	18	30	6	14	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	233	0	0	224	0	0	424	542	120	431	568	122
Stage 1	-	-	-	-	-	-	243	243	-	290	290	-
Stage 2	-	-	-	-	-	-	181	299	-	141	278	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	1339	-	-	1349	-	-	516	448	912	511	433	909
Stage 1	-	-	-	-	-	-	742	706	-	696	673	-
Stage 2	-	-	-	-	-	-	806	667	-	850	682	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1333	-	-	1340	-	-	471	423	902	458	409	902
Mov Cap-2 Maneuver	-	-	-	-	-	-	471	423	-	458	409	-
Stage 1	-	-	-	-	-	-	722	687	-	679	653	-
Stage 2	-	-	-	-	-	-	752	647	-	781	664	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	1	14	11.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	524	1333	-	-	1340	-	-	565
HCM Lane V/C Ratio	0.234	0.02	-	-	0.025	-	-	0.069
HCM Control Delay (s)	14	7.8	-	-	7.8	-	-	11.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.9	0.1	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	139	15	30	220	25	9	0	24	11	0	13
Future Vol, veh/h	20	139	15	30	220	25	9	0	24	11	0	13
Conflicting Peds, #/hr	0	0	0	0	0	8	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	92	92	91	91	92	92	92	91	92	91
Heavy Vehicles, %	1	2	2	2	2	2	2	2	2	1	2	1
Mvmt Flow	22	153	16	33	242	27	10	0	26	12	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	277	0	0	169	0	0	392	548	85	451	543	143
Stage 1	-	-	-	-	-	-	205	205	-	330	330	-
Stage 2	-	-	-	-	-	-	187	343	-	121	213	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.52	6.54	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.51	4.02	3.31
Pot Cap-1 Maneuver	1290	-	-	1406	-	-	542	442	957	494	445	882
Stage 1	-	-	-	-	-	-	778	731	-	660	644	-
Stage 2	-	-	-	-	-	-	797	636	-	873	725	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1280	-	-	1406	-	-	515	419	957	460	422	875
Mov Cap-2 Maneuver	-	-	-	-	-	-	515	419	-	460	422	-
Stage 1	-	-	-	-	-	-	765	719	-	644	621	-
Stage 2	-	-	-	-	-	-	762	613	-	835	713	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.9	9.9	11.1
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	775	1280	-	-	1406	-	-	619
HCM Lane V/C Ratio	0.046	0.017	-	-	0.023	-	-	0.043
HCM Control Delay (s)	9.9	7.9	-	-	7.6	0.1	-	11.1
HCM Lane LOS	A	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-	-	0.1

HCM 2010 TWSC
15: Bodway Pkwy & Camino Colegio 07/30/2019

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	93	83	161	111	61	114
Future Vol, veh/h	93	83	161	111	61	114
Conflicting Peds, #/hr	0	11	0	0	0	19
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	140	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	106	94	183	126	69	130

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	645	164	218	0	-	0
Stage 1	153	-	-	-	-	-
Stage 2	492	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	437	881	1352	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	363	856	1328	-	-	-
Mov Cap-2 Maneuver	363	-	-	-	-	-
Stage 1	740	-	-	-	-	-
Stage 2	604	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.6	4.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1328	-	363	856	-	-
HCM Lane V/C Ratio	0.138	-	0.291	0.11	-	-
HCM Control Delay (s)	8.1	-	18.9	9.7	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.5	-	1.2	0.4	-	-

HCM 2010 TWSC
16: Bodway Pkwy & Waterside Ln 07/30/2019

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	4	0	0	0	0	260	0	0	133	8
Future Vol, veh/h	0	0	4	0	0	0	0	260	0	0	133	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	88	92	88	92	88	88	88	88	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	0	0	4	0	0	0	0	295	0	0	151	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	156	-	-	297	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	-	-	6.2	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	890	0	0	747	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	890	-	-	746	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	890	-	-	-
HCM Lane V/C Ratio	-	-	0.005	-	-	-
HCM Control Delay (s)	-	-	9.1	0	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	-	-	-

HCM 2010 TWSC
17: Bodway Pkwy & Wisdom Ln

07/30/2019

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	9	0	0	0	20	241	0	0	121	12
Future Vol, veh/h	6	0	9	0	0	0	20	241	0	0	121	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	50	-	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	88	92	88	92	88	88	88	88	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	7	0	10	0	0	0	22	274	0	0	138	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	463	465	145	470	471	276	151	0	0	276	0	0
Stage 1	145	145	-	320	320	-	-	-	-	-	-	-
Stage 2	318	320	-	150	151	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.52	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4.018	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	509	495	902	507	491	768	1430	-	-	1299	-	-
Stage 1	858	777	-	696	652	-	-	-	-	-	-	-
Stage 2	693	652	-	857	772	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	502	485	902	494	481	767	1430	-	-	1297	-	-
Mov Cap-2 Maneuver	502	485	-	494	481	-	-	-	-	-	-	-
Stage 1	843	777	-	682	639	-	-	-	-	-	-	-
Stage 2	681	639	-	848	772	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.4	0	0.6	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1430	-	-	684	-	-	1297	-	-
HCM Lane V/C Ratio	0.015	-	-	0.024	-	-	-	-	-
HCM Control Delay (s)	7.6	0	-	10.4	0	0	0	-	-
HCM Lane LOS	A	A	-	B	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-	0	-	-

HCM 2010 Roundabout
18: SOMO Ave/Valley House Dr & Bodway Pkwy

07/30/2019

Intersection	
Intersection Delay, s/veh	6.5
Intersection LOS	A

Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	196	423	141
Demand Flow Rate, veh/h	199	431	143
Vehicles Circulating, veh/h	123	21	165
Vehicles Exiting, veh/h	185	301	287
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	5
Ped Cap Adj	1.000	1.000	0.999
Approach Delay, s/veh	5.6	7.4	5.2
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	199	431	143
Cap Entry Lane, veh/h	999	1106	958
Entry HV Adj Factor	0.982	0.981	0.986
Flow Entry, veh/h	196	423	141
Cap Entry, veh/h	982	1085	944
V/C Ratio	0.199	0.390	0.149
Control Delay, s/veh	5.6	7.4	5.2
LOS	A	A	A
95th %tile Queue, veh	1	2	1

HCM 2010 Signalized Intersection Summary
19: Petaluma Hill Rd & Valley House Dr

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	0	182	2	2	4	358	872	2	0	653	78
Future Volume (veh/h)	61	0	182	2	2	4	358	872	2	0	653	78
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		0.98	1.00		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	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	62	0	93	2	2	1	365	890	2	0	666	76
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	0	144	4	4	2	416	1325	3	2	775	659
Arrive On Green	0.09	0.00	0.09	0.01	0.01	0.01	0.23	0.71	0.71	0.00	0.42	0.42
Sat Flow, veh/h	1774	0	1546	706	706	353	1774	1858	4	1774	1863	1583
Grp Volume(v), veh/h	62	0	93	5	0	0	365	0	892	0	666	76
Grp Sat Flow(s),veh/h/ln	1774	0	1546	1765	0	0	1774	0	1862	1774	1863	1583
Q Serve(g_s), s	2.4	0.0	4.2	0.2	0.0	0.0	14.2	0.0	18.9	0.0	23.3	2.1
Cycle Q Clear(g_c), s	2.4	0.0	4.2	0.2	0.0	0.0	14.2	0.0	18.9	0.0	23.3	2.1
Prop In Lane	1.00		1.00	0.40		0.20	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	165	0	144	9	0	0	416	0	1328	2	775	659
V/C Ratio(X)	0.38	0.00	0.65	0.54	0.00	0.00	0.88	0.00	0.67	0.00	0.86	0.12
Avail Cap(c_a), veh/h	618	0	538	98	0	0	556	0	1790	99	1311	1114
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	30.6	0.0	31.4	35.6	0.0	0.0	26.5	0.0	5.7	0.0	19.0	12.8
Incr Delay (d2), s/veh	1.4	0.0	4.8	16.5	0.0	0.0	11.8	0.0	0.6	0.0	3.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	2.0	0.1	0.0	0.0	8.3	0.0	9.6	0.0	12.5	0.9
LnGrp Delay(d),s/veh	32.0	0.0	36.2	52.1	0.0	0.0	38.3	0.0	6.3	0.0	22.1	12.9
LnGrp LOS	C		D	D			D		A		C	B
Approach Vol, veh/h		155			5			1257			742	
Approach Delay, s/veh		34.5			52.1			15.5			21.2	
Approach LOS		C			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	56.2		11.2	21.3	34.9		4.4
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.0
Max Green Setting (Gmax), s	5.5	69.0		25.0	22.5	50.5		4.0
Max Q Clear Time (g_c+I1), s	10.0	20.9		6.2	16.2	25.3		2.2
Green Ext Time (p_c), s	0.0	7.6		0.5	0.6	4.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

HCM 2010 TWSC
20: Old Redwood Hwy & E Railroad Ave

07/30/2019

Intersection	
Int Delay, s/veh	11.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	32	32	8	27	24	52	662	21	31	337	27
Future Vol, veh/h	53	32	32	8	27	24	52	662	21	31	337	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	58	35	35	9	29	26	57	720	23	34	366	29

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1322	1307	381	1331	1310	733	395	0	0	744	0	0
Stage 1	449	449	-	847	847	-	-	-	-	-	-	-
Stage 2	873	858	-	484	463	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	133	160	666	132	159	421	1164	-	-	864	-	-
Stage 1	589	572	-	357	378	-	-	-	-	-	-	-
Stage 2	345	374	-	564	564	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	99	146	666	96	145	421	1164	-	-	863	-	-
Mov Cap-2 Maneuver	99	146	-	96	145	-	-	-	-	-	-	-
Stage 1	560	550	-	339	359	-	-	-	-	-	-	-
Stage 2	283	355	-	481	542	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	103.1	35.4	0.6	0.7
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1164	-	-	146	181	863	-	-
HCM Lane V/C Ratio	0.049	-	-	0.871	0.354	0.039	-	-
HCM Control Delay (s)	8.3	-	-	103.1	35.4	9.3	-	-
HCM Lane LOS	A	-	-	F	E	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	5.8	1.5	0.1	-	-

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	32	32	8	27	24	52	662	21	31	337	27
Future Vol, veh/h	53	32	32	8	27	24	52	662	21	31	337	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	-	-	50	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	58	35	35	9	29	26	57	720	23	34	366	29

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1322	1307	381	1331	1310	733	395	0	0	744	0	0
Stage 1	449	449	-	847	847	-	-	-	-	-	-	-
Stage 2	873	858	-	484	463	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	133	160	666	132	159	421	1164	-	-	864	-	-
Stage 1	589	572	-	357	378	-	-	-	-	-	-	-
Stage 2	345	374	-	564	564	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	99	146	666	96	145	421	1164	-	-	863	-	-
Mov Cap-2 Maneuver	99	146	-	96	145	-	-	-	-	-	-	-
Stage 1	560	550	-	339	359	-	-	-	-	-	-	-
Stage 2	283	355	-	481	542	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	51.8	31.7	0.6	0.7
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1164	-	-	99	239	130	421	863	-	-
HCM Lane V/C Ratio	0.049	-	-	0.582	0.291	0.293	0.062	0.039	-	-
HCM Control Delay (s)	8.3	-	-	82.8	26.1	43.8	14.1	9.3	-	-
HCM Lane LOS	A	-	-	F	D	E	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2.7	1.2	1.1	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	58	84	0	0	0
Future Vol, veh/h	0	58	84	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	0	66	95	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	95	0	-	0	161	95
Stage 1	-	-	-	-	95	-
Stage 2	-	-	-	-	66	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1505	-	-	-	832	964
Stage 1	-	-	-	-	931	-
Stage 2	-	-	-	-	959	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1505	-	-	-	832	964
Mov Cap-2 Maneuver	-	-	-	-	832	-
Stage 1	-	-	-	-	931	-
Stage 2	-	-	-	-	959	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1505	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	13.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	3	10	0	2	10	21	1174	2	5	781	61
Future Vol, veh/h	45	3	10	0	2	10	21	1174	2	5	781	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	47	3	10	0	2	10	22	1223	2	5	814	64

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2098	2093	814	2131	2156	1224	878	0	0	1225	0	0
Stage 1	824	824	-	1268	1268	-	-	-	-	-	-	-
Stage 2	1274	1269	-	863	888	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 38	52	378	36	48	218	769	-	-	569	-	-
Stage 1	367	387	-	207	240	-	-	-	-	-	-	-
Stage 2	205	239	-	349	362	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 34	50	378	32	46	218	769	-	-	569	-	-
Mov Cap-2 Maneuver	~ 34	50	-	32	46	-	-	-	-	-	-	-
Stage 1	356	384	-	201	233	-	-	-	-	-	-	-
Stage 2	188	232	-	334	359	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 463.1	34.6	0.2	0.1
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	769	-	-	41	134	569	-	-
HCM Lane V/C Ratio	0.028	-	-	1.474	0.093	0.009	-	-
HCM Control Delay (s)	9.8	-	-	$ 463.1	34.6	11.4	-	-
HCM Lane LOS	A	-	-	F	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	6.1	0.3	0	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	3	10	0	2	10	21	1174	2	5	781	61
Future Volume (veh/h)	45	3	10	0	2	10	21	1174	2	5	781	61
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		0.98	1.00		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	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	47	3	10	0	2	10	22	1223	2	5	814	64
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	205	11	151	0	26	132	60	1264	2	85	1293	1099
Arrive On Green	0.10	0.10	0.10	0.00	0.10	0.10	0.03	0.68	0.68	0.05	0.69	0.69
Sat Flow, veh/h	1241	109	1547	0	271	1353	1774	1859	3	1774	1863	1583
Grp Volume(v), veh/h	50	0	10	0	0	12	22	0	1225	5	814	64
Grp Sat Flow(s),veh/h/ln	1350	0	1547	0	0	1624	1774	0	1862	1774	1863	1583
Q Serve(g_s), s	2.6	0.0	0.5	0.0	0.0	0.6	1.0	0.0	51.1	0.2	19.7	1.1
Cycle Q Clear(g_c), s	3.1	0.0	0.5	0.0	0.0	0.6	1.0	0.0	51.1	0.2	19.7	1.1
Prop In Lane	0.94		1.00	0.00		0.83	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	216	0	151	0	0	158	60	0	1266	85	1293	1099
V/C Ratio(X)	0.23	0.00	0.07	0.00	0.00	0.08	0.37	0.00	0.97	0.06	0.63	0.06
Avail Cap(c_a), veh/h	402	0	354	0	0	381	275	0	1849	85	1650	1403
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	34.0	0.0	0.0	34.1	39.3	0.0	12.4	37.7	6.9	4.0
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.0	0.0	0.1	1.4	0.0	9.7	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.2	0.0	0.0	0.3	0.5	0.0	29.3	0.1	10.0	0.5
LnGrp Delay(d),s/veh	35.6	0.0	34.1	0.0	0.0	34.2	40.7	0.0	22.1	37.8	7.1	4.1
LnGrp LOS	D		C			C	D		C	D	A	A
Approach Vol, veh/h		60			12			1247			883	
Approach Delay, s/veh		35.4			34.2			22.5			7.0	
Approach LOS		D			C			C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.5	61.5		13.1	7.3	62.7		13.1
Change Period (Y+Rc), s	4.5	5.0		5.0	4.5	5.0		* 5
Max Green Setting (Gmax), s	4.0	82.5		19.0	12.9	73.6		* 20
Max Q Clear Time (g_c+I1), s	2.2	53.1		5.1	3.0	21.7		2.6
Green Ext Time (p_c), s	0.0	3.3		0.0	0.0	1.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.7
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	100	13	9	134	555	10	593	7	371	381	15
Future Volume (veh/h)	20	100	13	9	134	555	10	593	7	371	381	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	1	0	0	2	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
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	1976	1937	1976	1976	1937	1976	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	21	105	11	9	141	482	11	624	5	391	401	12
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	390	38	38	146	478	2	410	2	498	513	13
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.23	0.23	0.23	0.24	0.24	0.24
Sat Flow, veh/h	119	1073	104	8	389	1278	33	1885	15	1774	1799	54
Grp Volume(v), veh/h	137	0	0	632	0	0	640	0	0	391	0	413
Grp Sat Flow(s),veh/h/ln	1296	0	0	1676	0	0	1933	0	0	1774	0	1853
Q Serve(g_s), s	0.0	0.0	0.0	11.4	0.0	0.0	22.5	0.0	0.0	21.1	0.0	21.4
Cycle Q Clear(g_c), s	4.7	0.0	0.0	36.4	0.0	0.0	22.5	0.0	0.0	21.1	0.0	21.4
Prop In Lane	0.15		0.08	0.01		0.76	0.02		0.01	1.00		0.03
Lane Grp Cap(c), veh/h	510	0	0	662	0	0	396	0	0	498	0	460
V/C Ratio(X)	0.27	0.00	0.00	0.95	0.00	0.00	1.62	0.00	0.00	0.78	0.00	0.90
Avail Cap(c_a), veh/h	562	0	0	706	0	0	440	0	0	619	0	646
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.2	0.0	0.0	32.9	0.0	0.0	43.8	0.0	0.0	34.6	0.0	36.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	22.1	0.0	0.0	288.8	0.0	0.0	4.1	0.0	9.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0	1.3
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.0	22.1	0.0	0.0	44.8	0.0	0.0	10.9	0.0	12.6
LnGrp Delay(d),s/veh	22.3	0.0	0.0	55.0	0.0	0.0	338.2	0.0	0.0	38.7	0.0	47.3
LnGrp LOS	C			E			F			D		D
Approach Vol, veh/h		137			632			640			804	
Approach Delay, s/veh		22.3			55.0			338.2			43.1	
Approach LOS		C			E			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		27.0		43.2		28.7		43.2
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		22.5		39.5		34.5		39.5
Max Q Clear Time (g_c+I1), s		24.5		6.7		23.4		38.4
Green Ext Time (p_c), s		0.0		0.3		0.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	130.6
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	100	13	9	134	555	10	593	7	371	381	15
Future Volume (veh/h)	20	100	13	9	134	555	10	593	7	371	381	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	1	0	0	2	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
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	1976	1937	1976	1976	1937	1937	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	21	105	11	9	141	482	11	624	5	391	401	12
Adj No. of Lanes	0	1	0	0	1	1	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	349	33	51	456	803	11	679	5	445	452	13
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.36	0.36	0.36	0.25	0.25	0.25
Sat Flow, veh/h	141	1441	138	40	1879	1611	33	1885	15	1774	1799	54
Grp Volume(v), veh/h	137	0	0	150	0	482	640	0	0	391	0	413
Grp Sat Flow(s),veh/h/ln	1721	0	0	1919	0	1611	1933	0	0	1774	0	1853
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	19.7	28.7	0.0	0.0	19.3	0.0	19.6
Cycle Q Clear(g_c), s	5.3	0.0	0.0	5.8	0.0	19.7	28.7	0.0	0.0	19.3	0.0	19.6
Prop In Lane	0.15		0.08	0.06		1.00	0.02		0.01	1.00		0.03
Lane Grp Cap(c), veh/h	462	0	0	507	0	803	695	0	0	445	0	463
V/C Ratio(X)	0.30	0.00	0.00	0.30	0.00	0.60	0.92	0.00	0.00	0.88	0.00	0.89
Avail Cap(c_a), veh/h	570	0	0	634	0	906	799	0	0	604	0	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)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	0.0	28.6	0.0	16.8	28.3	0.0	0.0	33.1	0.0	33.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.5	14.3	0.0	0.0	8.9	0.0	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	1.2
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	3.1	0.0	12.2	18.5	0.0	0.0	10.6	0.0	11.7
LnGrp Delay(d),s/veh	28.6	0.0	0.0	28.7	0.0	17.3	42.8	0.0	0.0	42.0	0.0	44.3
LnGrp LOS	C			C		B	D			D		D
Approach Vol, veh/h		137			632			640			804	
Approach Delay, s/veh		28.6			20.0			42.8			43.2	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		37.2		26.6		26.9		26.6
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		37.5		28.1		30.9		28.1
Max Q Clear Time (g_c+I1), s		30.7		7.3		21.6		21.7
Green Ext Time (p_c), s		2.0		0.2		0.7		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	35.6
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
24: N McDowell Blvd & Old Redwood Hwy

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	675	479	90	550	6	697	43	200	13	77	246
Future Volume (veh/h)	72	675	479	90	550	6	697	43	200	13	77	246
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	80	750	0	100	611	4	731	0	100	14	86	125
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	1.00	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	1549	1056	133	1585	10	813	0	356	195	205	171
Arrive On Green	0.10	0.58	0.00	0.07	0.44	0.44	0.23	0.00	0.23	0.11	0.11	0.11
Sat Flow, veh/h	1774	3539	1583	1774	3604	24	3548	0	1555	1774	1863	1557
Grp Volume(v), veh/h	80	750	0	100	300	315	731	0	100	14	86	125
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1858	1774	0	1555	1774	1863	1557
Q Serve(g_s), s	5.6	16.0	0.0	7.2	14.9	14.9	26.0	0.0	6.9	0.9	5.6	10.1
Cycle Q Clear(g_c), s	5.6	16.0	0.0	7.2	14.9	14.9	26.0	0.0	6.9	0.9	5.6	10.1
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	129	1549	1056	133	778	817	813	0	356	195	205	171
V/C Ratio(X)	0.62	0.48	0.00	0.75	0.39	0.39	0.90	0.00	0.28	0.07	0.42	0.73
Avail Cap(c_a), veh/h	150	1549	1056	150	778	817	1054	0	462	412	433	362
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.0	18.6	0.0	59.0	24.6	24.6	48.7	0.0	41.3	51.9	54.0	56.0
Incr Delay (d2), s/veh	2.9	1.0	0.0	14.2	1.4	1.4	7.4	0.0	0.2	0.1	0.5	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	7.9	0.0	4.0	7.6	7.9	13.6	0.0	3.0	0.5	2.9	4.5
LnGrp Delay(d),s/veh	59.9	19.6	0.0	73.1	26.0	25.9	56.1	0.0	41.4	52.0	54.5	58.2
LnGrp LOS	E	B		E	C	C	E		D	D	D	E
Approach Vol, veh/h		830			715			831			225	
Approach Delay, s/veh		23.5			32.6			54.3			56.4	
Approach LOS		C			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.7	62.0		19.1	13.4	62.3		35.2
Change Period (Y+Rc), s	4.0	5.1		* 4.8	4.0	* 5.1		5.4
Max Green Setting (Gmax), s	10.0	30.9		* 30	11.0	* 31		38.6
Max Q Clear Time (g_c+I1), s	19.2	18.0		12.1	7.6	16.9		28.0
Green Ext Time (p_c), s	0.0	5.9		0.5	0.0	4.8		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	38.7
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
25: US 101 NB Off-ramp & Old Redwood Hwy

07/30/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	928	596	0	1508	95	296
Future Volume (veh/h)	928	596	0	1508	95	296
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	987	0	0	1604	101	202
Adj No. of Lanes	2	1	0	2	2	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2612	1169	0	2612	383	310
Arrive On Green	0.74	0.00	0.00	0.98	0.11	0.11
Sat Flow, veh/h	3632	1583	0	3725	3442	2787
Grp Volume(v), veh/h	987	0	0	1604	101	202
Grp Sat Flow(s),veh/h/ln	1770	1583	0	1770	1721	1393
Q Serve(g_s), s	6.6	0.0	0.0	1.4	1.7	4.5
Cycle Q Clear(g_c), s	6.6	0.0	0.0	1.4	1.7	4.5
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2612	1169	0	2612	383	310
V/C Ratio(X)	0.38	0.00	0.00	0.61	0.26	0.65
Avail Cap(c_a), veh/h	2612	1169	0	2612	810	656
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.75	1.00	1.00
Uniform Delay (d), s/veh	3.1	0.0	0.0	0.2	26.5	27.7
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.8	0.4	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	0.6	0.8	1.8
LnGrp Delay(d),s/veh	3.5	0.0	0.0	1.0	26.8	30.0
LnGrp LOS	A			A	C	C
Approach Vol, veh/h	987			1604	303	
Approach Delay, s/veh	3.5			1.0	28.9	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		53.1				53.1		11.9
Change Period (Y+Rc), s		5.1				5.1		4.7
Max Green Setting (Gmax), s		39.9				39.9		15.3
Max Q Clear Time (g_c+I1), s		8.6				3.4		6.5
Green Ext Time (p_c), s		11.4				22.9		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	4.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1: Snyder Ln & Rohnert Park Expwy

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	259	377	50	284	134	329	322	36	80	381	177
Future Volume (veh/h)	223	259	377	50	284	134	329	322	36	80	381	177
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		0.98	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	256	298	416	57	326	146	378	370	39	92	438	193
Adj No. of Lanes	2	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	525	918	672	193	763	545	570	884	559	456	766	574
Arrive On Green	0.15	0.26	0.26	0.11	0.22	0.22	0.17	0.25	0.25	0.13	0.22	0.22
Sat Flow, veh/h	3442	3539	1580	1774	3539	1556	3442	3539	1548	3442	3539	1538
Grp Volume(v), veh/h	256	298	416	57	326	146	378	370	39	92	438	193
Grp Sat Flow(s),veh/h/ln	1721	1770	1580	1774	1770	1556	1721	1770	1548	1721	1770	1538
Q Serve(g_s), s	5.3	5.3	16.1	2.3	6.2	5.3	8.1	6.9	1.3	1.9	8.7	7.1
Cycle Q Clear(g_c), s	5.3	5.3	16.1	2.3	6.2	5.3	8.1	6.9	1.3	1.9	8.7	7.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	525	918	672	193	763	545	570	884	559	456	766	574
V/C Ratio(X)	0.49	0.32	0.62	0.30	0.43	0.27	0.66	0.42	0.07	0.20	0.57	0.34
Avail Cap(c_a), veh/h	658	2044	1175	339	2039	1106	658	2039	1064	658	2039	1128
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	23.5	17.6	32.2	26.6	18.4	30.7	24.7	16.6	30.3	27.5	17.9
Incr Delay (d2), s/veh	0.3	0.1	0.3	0.3	0.1	0.1	1.3	0.1	0.0	0.1	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.6	7.0	1.2	3.0	2.3	3.9	3.4	0.6	0.9	4.3	3.0
LnGrp Delay(d),s/veh	30.7	23.6	18.0	32.5	26.7	18.5	32.0	24.8	16.6	30.4	27.7	18.0
LnGrp LOS	C	C	B	C	C	B	C	C	B	C	C	B
Approach Vol, veh/h		970			529			787			723	
Approach Delay, s/veh		23.0			25.1			27.8			25.5	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	25.4	12.5	26.1	17.0	22.8	16.0	22.7
Change Period (Y+Rc), s	4.0	5.8	4.0	* 5.8	4.0	5.8	4.0	* 5.8
Max Green Setting (Gmax), s	15.0	45.2	15.0	* 45	15.0	45.2	15.0	* 45
Max Q Clear Time (g_c+I1), s	3.9	8.9	4.3	18.1	10.1	10.7	7.3	8.2
Green Ext Time (p_c), s	0.0	0.8	0.0	0.8	0.2	1.0	0.1	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	25.2
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
2: US 101 SB Ramps & Gravenstein Hwy

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	796	286	128	816	0	0	0	0	762	3	224
Future Volume (veh/h)	0	796	286	128	816	0	0	0	0	762	3	224
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	8	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1937	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	812	141	131	833	0				778	3	131
Adj No. of Lanes	0	2	1	1	2	0				2	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1335	611	407	2291	0				932	47	388
Arrive On Green	0.00	0.38	0.38	0.31	0.87	0.00				0.27	0.27	0.27
Sat Flow, veh/h	0	3632	1621	1774	3632	0				3442	36	1553
Grp Volume(v), veh/h	0	812	141	131	833	0				778	0	134
Grp Sat Flow(s),veh/h/ln	0	1770	1621	1774	1770	0				1721	0	1589
Q Serve(g_s), s	0.0	20.4	6.5	6.2	5.0	0.0				23.6	0.0	7.4
Cycle Q Clear(g_c), s	0.0	20.4	6.5	6.2	5.0	0.0				23.6	0.0	7.4
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.98
Lane Grp Cap(c), veh/h	0	1335	611	407	2291	0				932	0	436
V/C Ratio(X)	0.00	0.61	0.23	0.32	0.36	0.00				0.83	0.00	0.31
Avail Cap(c_a), veh/h	0	1335	611	414	2305	0				1111	0	513
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.58	0.58	0.98	0.98	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	27.7	23.4	31.7	3.1	0.0				37.8	0.0	32.6
Incr Delay (d2), s/veh	0.0	1.2	0.5	0.2	0.4	0.0				4.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	3.5
%ile BackOfQ(50%),veh/ln	0.0	10.1	3.0	3.1	2.5	0.0				11.6	0.0	4.7
LnGrp Delay(d),s/veh	0.0	28.9	23.9	31.8	3.5	0.0				42.0	0.0	36.3
LnGrp LOS		C	C	C	A					D		D
Approach Vol, veh/h		953			964						912	
Approach Delay, s/veh		28.1			7.4						41.1	
Approach LOS		C			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	10.1	46.0		33.9		76.1		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	19.5	41.5		35.5		65.5		
Max Q Clear Time (g_c+I1), s	8.2	22.4		25.6		7.0		
Green Ext Time (p_c), s	0.1	5.6		3.8		5.9		

Intersection Summary	
HCM 2010 Ctrl Delay	25.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
3: US 101 NB Off-ramp & Gravenstein Hwy

05/16/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1554	0	0	634	310	279
Future Volume (veh/h)	1554	0	0	634	310	279
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863
Adj Flow Rate, veh/h	1602	0	0	654	320	245
Adj No. of Lanes	2	0	0	3	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	2544	0	0	3655	686	316
Arrive On Green	1.00	0.00	0.00	0.72	0.20	0.20
Sat Flow, veh/h	3725	0	0	5421	3442	1583
Grp Volume(v), veh/h	1602	0	0	654	320	245
Grp Sat Flow(s),veh/h/ln	1770	0	0	1695	1721	1583
Q Serve(g_s), s	0.0	0.0	0.0	4.6	9.0	16.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	4.6	9.0	16.1
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2544	0	0	3655	686	316
V/C Ratio(X)	0.63	0.00	0.00	0.18	0.47	0.78
Avail Cap(c_a), veh/h	2544	0	0	3655	1048	482
HCM Platoon Ratio	2.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.00	0.00	0.81	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	5.0	38.9	41.7
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.1	0.5	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	2.1	4.4	7.5
LnGrp Delay(d),s/veh	0.8	0.0	0.0	5.1	39.4	46.0
LnGrp LOS	A			A	D	D
Approach Vol, veh/h	1602			654	565	
Approach Delay, s/veh	0.8			5.1	42.3	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.6				83.6		26.4
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		67.5				67.5		33.5
Max Q Clear Time (g_c+I1), s		2.0				6.6		18.1
Green Ext Time (p_c), s		37.9				9.3		3.8

Intersection Summary	
HCM 2010 Ctrl Delay	10.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Old Redwood Hwy & Gravenstein Hwy/Gravenstein Way

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	757	136	965	64	50	65	301	648	28	28	185	222
Future Volume (veh/h)	757	136	965	64	50	65	301	648	28	28	185	222
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	3	0	0	0	0	0	0	3	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	780	140	0	66	52	51	310	668	22	29	191	229
Adj No. of Lanes	2	1	1	1	1	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	982	532	452	178	85	83	414	836	26	247	259	672
Arrive On Green	0.28	0.28	0.00	0.10	0.10	0.10	0.23	0.23	0.23	0.14	0.14	0.14
Sat Flow, veh/h	3442	1863	1583	1774	846	830	1774	3580	118	1774	1863	1583
Grp Volume(v), veh/h	780	140	0	66	0	103	310	347	343	29	191	229
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	0	1675	1774	1863	1835	1774	1863	1583
Q Serve(g_s), s	15.1	4.2	0.0	2.5	0.0	4.2	11.7	12.7	12.7	1.0	7.1	7.0
Cycle Q Clear(g_c), s	15.1	4.2	0.0	2.5	0.0	4.2	11.7	12.7	12.7	1.0	7.1	7.0
Prop In Lane	1.00		1.00	1.00		0.50	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	982	532	452	178	0	168	414	434	428	247	259	672
V/C Ratio(X)	0.79	0.26	0.00	0.37	0.00	0.61	0.75	0.80	0.80	0.12	0.74	0.34
Avail Cap(c_a), veh/h	1171	634	539	591	0	558	468	492	484	616	647	1000
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.0	20.0	0.0	30.4	0.0	31.2	25.8	26.3	26.3	27.3	29.9	14.0
Incr Delay (d2), s/veh	2.7	0.1	0.0	0.5	0.0	1.3	4.7	7.1	7.2	0.1	1.5	0.1
Initial Q Delay(d3),s/veh	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	2.2	0.0	1.3	0.0	2.0	6.3	7.6	7.5	0.5	3.7	4.6
LnGrp Delay(d),s/veh	27.0	20.1	0.0	30.9	0.0	32.6	30.5	33.8	34.0	27.4	31.4	14.1
LnGrp LOS	C	C		C		C	C	C	C	C	C	B
Approach Vol, veh/h		920			169			1000			449	
Approach Delay, s/veh		25.9			31.9			32.8			22.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		25.0		14.5		11.2		21.3
Change Period (Y+Rc), s		4.5		4.5		4.0		4.5
Max Green Setting (Gmax), s		24.5		25.0		24.0		19.0
Max Q Clear Time (g_c+I1), s		17.1		9.1		6.2		14.7
Green Ext Time (p_c), s		3.2		1.0		0.2		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	28.4
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave 05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	308	10	28	228	429	14	372	12	594	418	93
Future Volume (veh/h)	93	308	10	28	228	429	14	372	12	594	418	93
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	4	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.95	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	96	318	8	29	235	396	14	384	11	612	431	91
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	606	497	40	513	440	23	703	20	462	834	690
Arrive On Green	0.06	0.33	0.33	0.02	0.29	0.29	0.01	0.20	0.20	0.26	0.45	0.45
Sat Flow, veh/h	1774	1863	1527	1774	1770	1521	1774	3508	100	1774	1863	1542
Grp Volume(v), veh/h	96	318	8	29	235	396	14	193	202	612	431	91
Grp Sat Flow(s),veh/h/ln	1774	1863	1527	1774	1770	1521	1774	1770	1838	1774	1863	1542
Q Serve(g_s), s	5.1	13.1	0.3	1.5	10.2	23.5	0.7	9.2	9.3	24.5	15.7	3.3
Cycle Q Clear(g_c), s	5.1	13.1	0.3	1.5	10.2	23.5	0.7	9.2	9.3	24.5	15.7	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	104	606	497	40	513	440	23	355	368	462	834	690
V/C Ratio(X)	0.93	0.52	0.02	0.72	0.46	0.90	0.61	0.55	0.55	1.33	0.52	0.13
Avail Cap(c_a), veh/h	104	606	497	113	564	485	75	602	625	462	1039	860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.1	25.8	21.5	45.7	27.4	32.1	46.2	33.8	33.8	34.8	18.7	15.3
Incr Delay (d2), s/veh	64.2	0.4	0.0	8.8	0.2	17.4	9.1	0.5	0.5	160.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	6.8	0.1	0.8	5.0	12.0	0.4	4.6	4.8	36.6	8.1	1.4
LnGrp Delay(d),s/veh	108.3	26.2	21.5	54.5	27.6	49.6	55.3	34.3	34.3	218.8	18.9	15.3
LnGrp LOS	F	C	C	D	C	D	E	C	C	F	B	B
Approach Vol, veh/h		422			660			409			1134	
Approach Delay, s/veh		44.8			42.0			35.0			126.5	
Approach LOS		D			D			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	35.1	5.7	46.6	10.0	31.8	29.0	23.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.6	29.5	4.0	52.5	5.5	30.0	24.5	32.0
Max Q Clear Time (g_c+I1), s	3.5	15.1	2.7	17.7	7.1	25.5	26.5	11.3
Green Ext Time (p_c), s	0.0	0.6	0.0	0.9	0.0	0.8	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	77.8
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave 05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	308	10	28	228	429	14	372	12	594	418	93
Future Volume (veh/h)	93	308	10	28	228	429	14	372	12	594	418	93
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	4	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.95	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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	96	318	8	29	235	396	14	384	11	612	431	91
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	494	403	39	414	867	23	688	20	596	967	802
Arrive On Green	0.07	0.27	0.27	0.02	0.22	0.22	0.01	0.20	0.20	0.34	0.52	0.52
Sat Flow, veh/h	1774	1863	1521	1774	1863	1507	1774	3508	100	1774	1863	1545
Grp Volume(v), veh/h	96	318	8	29	235	396	14	193	202	612	431	91
Grp Sat Flow(s),veh/h/ln	1774	1863	1521	1774	1863	1507	1774	1770	1838	1774	1863	1545
Q Serve(g_s), s	5.3	15.1	0.4	1.6	11.2	15.7	0.8	9.8	9.9	33.5	14.4	3.0
Cycle Q Clear(g_c), s	5.3	15.1	0.4	1.6	11.2	15.7	0.8	9.8	9.9	33.5	14.4	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	116	494	403	39	414	867	23	347	361	596	967	802
V/C Ratio(X)	0.83	0.64	0.02	0.74	0.57	0.46	0.61	0.56	0.56	1.03	0.45	0.11
Avail Cap(c_a), veh/h	116	603	493	75	560	986	71	568	590	596	1149	953
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	32.5	27.1	48.5	34.5	13.2	49.0	36.2	36.2	33.1	15.0	12.2
Incr Delay (d2), s/veh	35.6	0.9	0.0	9.6	0.5	0.1	9.4	0.5	0.5	43.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.2	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	7.9	0.2	0.9	5.8	6.5	0.4	4.8	5.0	27.5	7.5	1.3
LnGrp Delay(d),s/veh	81.7	33.3	27.1	58.0	35.0	13.3	58.4	36.7	36.7	100.2	15.1	12.3
LnGrp LOS	F	C	C	E	C	B	E	D	D	F	B	B
Approach Vol, veh/h		422			660			409			1134	
Approach Delay, s/veh		44.2			23.0			37.4			60.8	
Approach LOS		D			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	30.9	5.8	56.3	11.0	26.6	38.0	24.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	4.2	32.3	4.0	61.5	6.5	30.0	33.5	32.0
Max Q Clear Time (g_c+I1), s	3.6	17.1	2.8	16.4	7.3	17.7	35.5	11.9
Green Ext Time (p_c), s	0.0	0.6	0.0	0.9	0.0	0.7	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	45.0
HCM 2010 LOS	D

Intersection	
Intersection Delay, s/veh	87.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	1005	165	75	651	1	151	0	82	9	0	14
Future Vol, veh/h	1	1005	165	75	651	1	151	0	82	9	0	14
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1047	172	78	678	1	157	0	85	9	0	15
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	134.8	34.6	22.3	12.6
HCM LOS	F	D	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	65%	100%	0%	0%	100%	0%	0%	39%
Vol Thru, %	0%	0%	100%	67%	0%	100%	100%	0%
Vol Right, %	35%	0%	0%	33%	0%	0%	0%	61%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	233	1	670	500	75	434	218	23
LT Vol	151	1	0	0	75	0	0	9
Through Vol	0	0	670	335	0	434	217	0
RT Vol	82	0	0	165	0	0	1	14
Lane Flow Rate	243	1	698	521	78	452	227	24
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.565	0.002	1.352	0.974	0.166	0.9	0.452	0.059
Departure Headway (Hd)	8.792	7.485	6.972	6.735	8.083	7.569	7.565	9.283
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	413	475	523	536	447	484	479	388
Service Time	6.492	5.278	4.764	4.527	5.783	5.269	5.265	6.983
HCM Lane V/C Ratio	0.588	0.002	1.335	0.972	0.174	0.934	0.474	0.062
HCM Control Delay	22.3	10.3	191.8	58.7	12.4	47.5	16.4	12.6
HCM Lane LOS	C	B	F	F	B	E	C	B
HCM 95th-tile Q	3.4	0	30.8	13	0.6	10	2.3	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1005	165	75	651	1	151	0	82	9	0	14
Future Volume (veh/h)	1	1005	165	75	651	1	151	0	82	9	0	14
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.96	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1976	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	1	1047	151	78	678	1	157	0	64	9	0	10
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	514	1603	231	333	1883	3	388	19	94	278	47	192
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.22	0.00	0.22	0.22	0.00	0.22
Sat Flow, veh/h	753	3088	445	464	3626	5	950	86	423	566	211	864
Grp Volume(v), veh/h	1	599	599	78	331	348	221	0	0	19	0	0
Grp Sat Flow(s),veh/h/ln	753	1770	1763	464	1770	1862	1459	0	0	1642	0	0
Q Serve(g_s), s	0.0	8.6	8.6	5.1	3.9	3.9	4.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.9	8.6	8.6	13.7	3.9	3.9	4.8	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00		0.25	1.00		0.00	0.71		0.29	0.47		0.53
Lane Grp Cap(c), veh/h	514	919	915	333	919	967	501	0	0	518	0	0
V/C Ratio(X)	0.00	0.65	0.65	0.23	0.36	0.36	0.44	0.00	0.00	0.04	0.00	0.00
Avail Cap(c_a), veh/h	1431	3072	3060	897	3072	3232	1439	0	0	1460	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.1	6.1	6.1	11.1	5.0	5.0	12.3	0.0	0.0	10.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.3	0.1	0.1	0.1	0.2	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	4.1	4.1	0.7	1.9	2.0	1.9	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	6.1	6.4	6.4	11.2	5.0	5.0	12.6	0.0	0.0	10.7	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	B			B		
Approach Vol, veh/h		1199			757			221			19	
Approach Delay, s/veh		6.4			5.7			12.6			10.7	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		22.6		12.3		22.6		12.3
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		60.5		30.5		60.5		30.5
Max Q Clear Time (g_c+I1), s		10.6		2.3		15.7		6.8
Green Ext Time (p_c), s		3.2		0.0		2.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	6.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave 05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	450	419	145	582	52	259	133	108	43	203	87
Future Volume (veh/h)	121	450	419	145	582	52	259	133	108	43	203	87
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	2	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.95	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	130	484	419	156	626	45	278	143	89	46	218	56
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	539	466	199	1097	78	306	492	408	184	278	71
Arrive On Green	0.10	0.30	0.30	0.11	0.33	0.33	0.17	0.26	0.26	0.10	0.20	0.20
Sat Flow, veh/h	1774	1773	1534	1774	3334	239	1774	1863	1544	1774	1423	365
Grp Volume(v), veh/h	130	483	420	156	332	339	278	143	89	46	0	274
Grp Sat Flow(s),veh/h/ln	1774	1770	1537	1774	1770	1804	1774	1863	1544	1774	0	1788
Q Serve(g_s), s	6.2	22.7	22.8	7.4	13.5	13.5	13.4	5.3	3.9	2.1	0.0	12.7
Cycle Q Clear(g_c), s	6.2	22.7	22.8	7.4	13.5	13.5	13.4	5.3	3.9	2.1	0.0	12.7
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	176	538	467	199	582	593	306	492	408	184	0	349
V/C Ratio(X)	0.74	0.90	0.90	0.78	0.57	0.57	0.91	0.29	0.22	0.25	0.00	0.78
Avail Cap(c_a), veh/h	204	592	514	204	612	624	306	688	570	204	0	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.1	29.0	29.0	37.6	24.2	24.2	35.3	25.5	25.0	35.9	0.0	33.3
Incr Delay (d2), s/veh	9.0	14.8	16.6	15.9	0.6	0.6	28.7	0.1	0.1	0.3	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	13.2	11.8	4.5	6.8	6.9	9.0	2.8	1.7	1.0	0.0	6.4
LnGrp Delay(d),s/veh	47.1	43.8	45.7	53.5	24.9	24.9	64.0	25.6	25.1	36.2	0.0	34.7
LnGrp LOS	D	D	D	D	C	C	E	C	C	D		C
Approach Vol, veh/h		1033			827			510			320	
Approach Delay, s/veh		45.0			30.3			46.5			34.9	
Approach LOS		D			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	31.3	19.0	21.9	12.6	33.5	13.0	27.9
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	9.8	29.1	15.0	27.1	10.0	30.1	10.0	32.1
Max Q Clear Time (g_c+I1), s	9.4	24.8	15.4	14.7	8.2	15.5	4.1	7.3
Green Ext Time (p_c), s	0.0	1.1	0.0	0.4	0.0	1.2	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	39.5
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave 05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	450	419	145	582	52	259	133	108	43	203	87
Future Volume (veh/h)	121	450	419	145	582	52	259	133	108	43	203	87
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	2	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.95	1.00		0.97	0.99		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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	130	484	419	156	626	45	278	143	89	46	218	56
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	187	554	479	213	1133	80	390	416	344	467	283	73
Arrive On Green	0.11	0.31	0.31	0.12	0.34	0.34	0.14	0.22	0.22	0.11	0.20	0.20
Sat Flow, veh/h	1774	1774	1534	1774	3335	239	1774	1863	1540	1774	1423	365
Grp Volume(v), veh/h	130	483	420	156	332	339	278	143	89	46	0	274
Grp Sat Flow(s),veh/h/ln	1774	1770	1538	1774	1770	1805	1774	1863	1540	1774	0	1788
Q Serve(g_s), s	5.7	20.9	20.9	6.9	12.3	12.4	10.0	5.2	3.8	1.5	0.0	11.7
Cycle Q Clear(g_c), s	5.7	20.9	20.9	6.9	12.3	12.4	10.0	5.2	3.8	1.5	0.0	11.7
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	187	553	481	213	601	613	390	416	344	467	0	356
V/C Ratio(X)	0.70	0.87	0.87	0.73	0.55	0.55	0.71	0.34	0.26	0.10	0.00	0.77
Avail Cap(c_a), veh/h	286	684	594	264	684	697	390	669	553	467	0	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.9	26.3	26.3	34.3	21.8	21.8	22.3	26.4	25.9	19.8	0.0	30.6
Incr Delay (d2), s/veh	1.7	8.9	10.1	5.5	0.3	0.3	5.2	0.2	0.1	0.0	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	11.6	10.2	3.7	6.2	6.3	5.4	2.7	1.6	0.7	0.0	5.9
LnGrp Delay(d),s/veh	36.6	35.2	36.4	39.8	22.1	22.1	27.6	26.6	26.0	19.8	0.0	32.0
LnGrp LOS	D	D	D	D	C	C	C	C	C	B		C
Approach Vol, veh/h		1033			827			510			320	
Approach Delay, s/veh		35.9			25.5			27.0			30.2	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.7	30.1	15.0	21.0	12.5	32.3	13.0	23.0
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	9.8	31.2	11.0	27.0	13.0	31.2	9.0	29.0
Max Q Clear Time (g_c+I1), s	12.4	22.9	12.0	13.7	7.7	14.4	3.5	7.2
Green Ext Time (p_c), s	0.0	1.6	0.0	0.5	0.0	1.3	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	30.3
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	287	69	12	456	462	48	163	11	290	241	291
Future Volume (veh/h)	242	287	69	12	456	462	48	163	11	290	241	291
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	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	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	249	296	41	12	470	271	49	168	7	299	248	169
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	294	1219	683	48	728	622	174	585	24	344	493	671
Arrive On Green	0.17	0.34	0.34	0.03	0.21	0.21	0.10	0.17	0.17	0.19	0.26	0.26
Sat Flow, veh/h	1774	3539	1530	1774	3539	1531	1774	3460	143	1774	1863	1544
Grp Volume(v), veh/h	249	296	41	12	470	271	49	85	90	299	248	169
Grp Sat Flow(s),veh/h/ln	1774	1770	1530	1774	1770	1531	1774	1770	1834	1774	1863	1544
Q Serve(g_s), s	9.1	4.0	1.0	0.4	8.1	8.6	1.7	2.8	2.9	10.9	7.6	4.7
Cycle Q Clear(g_c), s	9.1	4.0	1.0	0.4	8.1	8.6	1.7	2.8	2.9	10.9	7.6	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	294	1219	683	48	728	622	174	299	310	344	493	671
V/C Ratio(X)	0.85	0.24	0.06	0.25	0.65	0.44	0.28	0.29	0.29	0.87	0.50	0.25
Avail Cap(c_a), veh/h	530	2013	1026	397	1749	1063	530	769	797	530	809	933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	15.7	10.7	31.9	24.4	14.7	28.0	24.3	24.3	26.2	20.9	12.2
Incr Delay (d2), s/veh	2.6	0.0	0.0	1.0	0.4	0.2	0.3	0.2	0.2	6.3	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	1.9	0.4	0.2	4.0	3.7	0.9	1.4	1.5	5.9	3.9	2.0
LnGrp Delay(d),s/veh	29.7	15.7	10.7	32.9	24.7	14.8	28.3	24.5	24.5	32.4	21.2	12.3
LnGrp LOS	C	B	B	C	C	B	C	C	C	C	C	B
Approach Vol, veh/h		586			753			224			716	
Approach Delay, s/veh		21.3			21.3			25.3			23.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	28.0	10.6	22.6	15.1	18.7	17.0	16.2
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	5.0	38.1	20.0	29.1	20.0	33.1	20.0	29.1
Max Q Clear Time (g_c+I1), s	2.4	6.0	3.7	9.6	11.1	10.6	12.9	4.9
Green Ext Time (p_c), s	0.0	0.7	0.0	0.5	0.1	1.2	0.1	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	410	118	190	490	16	175	48	147	69	45	259
Future Volume (veh/h)	148	410	118	190	490	16	175	48	147	69	45	259
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	156	432	101	200	516	16	184	51	91	73	47	153
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	194	685	159	236	924	29	349	367	299	236	152	491
Arrive On Green	0.11	0.24	0.24	0.13	0.26	0.26	0.20	0.20	0.20	0.21	0.21	0.21
Sat Flow, veh/h	1774	2852	661	1774	3502	108	1774	1863	1520	1100	708	1482
Grp Volume(v), veh/h	156	267	266	200	260	272	184	51	91	120	0	153
Grp Sat Flow(s),veh/h/ln	1774	1770	1744	1774	1770	1840	1774	1863	1520	1808	0	1482
Q Serve(g_s), s	7.7	12.1	12.3	9.9	11.4	11.4	8.3	2.0	4.6	5.0	0.0	7.0
Cycle Q Clear(g_c), s	7.7	12.1	12.3	9.9	11.4	11.4	8.3	2.0	4.6	5.0	0.0	7.0
Prop In Lane	1.00		0.38	1.00		0.06	1.00		1.00	0.61		1.00
Lane Grp Cap(c), veh/h	194	425	419	236	467	485	349	367	299	388	0	491
V/C Ratio(X)	0.80	0.63	0.64	0.85	0.56	0.56	0.53	0.14	0.30	0.31	0.00	0.31
Avail Cap(c_a), veh/h	495	989	975	297	792	823	610	640	522	621	0	683
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.0	30.5	30.5	37.9	28.5	28.5	32.3	29.7	30.7	29.6	0.0	22.8
Incr Delay (d2), s/veh	7.5	3.2	3.4	16.5	2.2	2.2	2.6	0.4	1.2	1.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	6.3	6.3	5.9	5.9	6.1	4.3	1.1	2.0	2.6	0.0	2.9
LnGrp Delay(d),s/veh	46.4	33.7	33.9	54.4	30.7	30.7	34.9	30.1	32.0	30.6	0.0	23.6
LnGrp LOS	D	C	C	D	C	C	C	C	C	C		C
Approach Vol, veh/h		689			732			326			273	
Approach Delay, s/veh		36.7			37.2			33.3			26.7	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.9	26.4		24.4	13.8	28.5		22.9
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		5.2
Max Green Setting (Gmax), s	5.0	50.1		* 31	25.0	40.1		30.8
Max Q Clear Time (g_c+I1), s	11.7	14.3		9.0	9.7	13.4		10.3
Green Ext Time (p_c), s	0.2	6.9		2.4	0.3	6.2		2.4

Intersection Summary	
HCM 2010 Ctrl Delay	35.0
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

05/16/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	212	288	230	744	508	235
Future Volume (veh/h)	212	288	230	744	508	235
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.98	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1976	1863	1863	1863	1863
Adj Flow Rate, veh/h	219	159	237	767	524	174
Adj No. of Lanes	0	0	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	257	187	295	1047	595	495
Arrive On Green	0.26	0.26	0.17	0.56	0.32	0.32
Sat Flow, veh/h	1005	730	1774	1863	1863	1550
Grp Volume(v), veh/h	379	0	237	767	524	174
Grp Sat Flow(s),veh/h/ln	1739	0	1774	1863	1863	1550
Q Serve(g_s), s	10.8	0.0	6.7	16.0	13.9	4.5
Cycle Q Clear(g_c), s	10.8	0.0	6.7	16.0	13.9	4.5
Prop In Lane	0.58	0.42	1.00			1.00
Lane Grp Cap(c), veh/h	445	0	295	1047	595	495
V/C Ratio(X)	0.85	0.00	0.80	0.73	0.88	0.35
Avail Cap(c_a), veh/h	1531	0	848	1871	837	697
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	0.0	21.0	8.5	16.9	13.6
Incr Delay (d2), s/veh	1.8	0.0	1.9	0.4	6.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	3.5	8.2	8.2	1.9
LnGrp Delay(d),s/veh	20.3	0.0	22.9	8.9	23.1	13.8
LnGrp LOS	C		C	A	C	B
Approach Vol, veh/h	379			1004	698	
Approach Delay, s/veh	20.3			12.2	20.8	
Approach LOS	C			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		34.9		17.4	12.7	22.2		
Change Period (Y+Rc), s		5.5		4.0	4.0	5.5		
Max Green Setting (Gmax), s		52.5		46.0	25.0	23.5		
Max Q Clear Time (g_c+I1), s		18.0		12.8	8.7	15.9		
Green Ext Time (p_c), s		1.5		0.6	0.3	0.8		

Intersection Summary	
HCM 2010 Ctrl Delay	16.6
HCM 2010 LOS	B

Notes

HCM 2010 AWSC
12: Camino Colegio & Mitchell Dr

05/16/2019

Intersection	
Intersection Delay, s/veh	16.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	166	258	58	190	43	191	29	46	26	44	2
Future Vol, veh/h	8	166	258	58	190	43	191	29	46	26	44	2
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	2	2	2	2	0	2	2	2	0	2	0
Mvmt Flow	9	191	297	67	218	49	220	33	53	30	51	2
Number of Lanes	1	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	3
HCM Control Delay	16.4	14.2	21.4	12.4
HCM LOS	C	B	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	72%	100%	0%	0%	38%	0%	36%
Vol Thru, %	11%	0%	100%	18%	62%	69%	61%
Vol Right, %	17%	0%	0%	82%	0%	31%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	266	8	111	313	153	138	72
LT Vol	191	8	0	0	58	0	26
Through Vol	29	0	111	55	95	95	44
RT Vol	46	0	0	258	0	43	2
Lane Flow Rate	306	9	127	360	176	159	83
Geometry Grp	7	7	7	7	8	8	7
Degree of Util (X)	0.622	0.018	0.238	0.614	0.374	0.319	0.181
Departure Headway (Hd)	7.319	7.206	6.729	6.139	7.66	7.24	7.861
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	495	497	534	587	470	496	456
Service Time	5.058	4.945	4.468	3.878	5.408	4.988	5.613
HCM Lane V/C Ratio	0.618	0.018	0.238	0.613	0.374	0.321	0.182
HCM Control Delay	21.4	10.1	11.6	18.2	14.9	13.4	12.4
HCM Lane LOS	C	B	B	C	B	B	B
HCM 95th-tile Q	4.2	0.1	0.9	4.2	1.7	1.4	0.7

HCM 2010 AWSC
12: Camino Colegio & Mitchell Dr 05/16/2019

Intersection	
Intersection Delay, s/veh	16.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	166	258	58	190	43	191	29	46	26	44	2
Future Vol, veh/h	8	166	258	58	190	43	191	29	46	26	44	2
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	2	2	2	2	0	2	2	2	0	2	0
Mvmt Flow	9	191	297	67	218	49	220	33	53	30	51	2
Number of Lanes	1	1	1	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	3
HCM Control Delay	15.6	17.4	16.6	13.3
HCM LOS	C	C	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	36%
Vol Thru, %	0%	39%	0%	100%	0%	0%	82%	61%
Vol Right, %	0%	61%	0%	0%	100%	0%	18%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	191	75	8	166	258	58	233	72
LT Vol	191	0	8	0	0	58	0	26
Through Vol	0	29	0	166	0	0	190	44
RT Vol	0	46	0	0	258	0	43	2
Lane Flow Rate	220	86	9	191	297	67	268	83
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.494	0.171	0.02	0.382	0.535	0.148	0.547	0.195
Departure Headway (Hd)	8.1	7.156	7.682	7.206	6.491	7.996	7.351	8.468
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	446	501	466	498	555	448	490	423
Service Time	5.857	4.912	5.433	4.957	4.242	5.752	5.106	6.237
HCM Lane V/C Ratio	0.493	0.172	0.019	0.384	0.535	0.15	0.547	0.196
HCM Control Delay	18.6	11.4	10.6	14.4	16.5	12.1	18.7	13.3
HCM Lane LOS	C	B	B	B	C	B	C	B
HCM 95th-tile Q	2.7	0.6	0.1	1.8	3.1	0.5	3.2	0.7

HCM 2010 TWSC
13: Camino Colegio & Manchester Ave 05/16/2019

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	152	65	32	202	19	69	17	28	10	13	19
Future Vol, veh/h	26	152	65	32	202	19	69	17	28	10	13	19
Conflicting Peds, #/hr	0	0	7	0	0	5	0	0	4	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	28	163	70	34	217	20	74	18	30	11	14	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	242	0	0	240	0	0	448	571	128	451	596	127
Stage 1	-	-	-	-	-	-	261	261	-	300	300	-
Stage 2	-	-	-	-	-	-	187	310	-	151	296	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	1329	-	-	1331	-	-	497	431	901	494	417	903
Stage 1	-	-	-	-	-	-	724	693	-	687	667	-
Stage 2	-	-	-	-	-	-	800	660	-	839	669	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1323	-	-	1322	-	-	451	406	892	441	393	896
Mov Cap-2 Maneuver	-	-	-	-	-	-	451	406	-	441	393	-
Stage 1	-	-	-	-	-	-	704	674	-	669	646	-
Stage 2	-	-	-	-	-	-	743	640	-	769	650	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	1	14.4	12.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	504	1323	-	-	1322	-	-	546
HCM Lane V/C Ratio	0.243	0.021	-	-	0.026	-	-	0.083
HCM Control Delay (s)	14.4	7.8	-	-	7.8	-	-	12.2
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.9	0.1	-	-	0.1	-	-	0.3

HCM 2010 TWSC
13: Camino Colegio & Manchester Ave 05/16/2019

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	152	65	32	202	19	69	17	28	10	13	19
Future Vol, veh/h	26	152	65	32	202	19	69	17	28	10	13	19
Conflicting Peds, #/hr	0	0	7	0	0	5	0	0	4	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	160	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	28	163	70	34	217	20	74	18	30	11	14	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	242	0	0	240	0	0	576	571	209	582	596	235
Stage 1	-	-	-	-	-	-	261	261	-	300	300	-
Stage 2	-	-	-	-	-	-	315	310	-	282	296	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1330	-	-	1333	-	-	430	432	834	426	418	807
Stage 1	-	-	-	-	-	-	746	694	-	711	667	-
Stage 2	-	-	-	-	-	-	698	661	-	727	670	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1324	-	-	1324	-	-	390	407	825	379	394	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	390	407	-	379	394	-
Stage 1	-	-	-	-	-	-	725	675	-	693	646	-
Stage 2	-	-	-	-	-	-	647	641	-	665	651	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	1	15.9	12.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	451	1324	-	-	1324	-	-	505
HCM Lane V/C Ratio	0.272	0.021	-	-	0.026	-	-	0.089
HCM Control Delay (s)	15.9	7.8	-	-	7.8	-	-	12.8
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1.1	0.1	-	-	0.1	-	-	0.3

HCM 2010 TWSC
14: Camino Colegio & Mainsail Dr 05/16/2019

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	140	34	30	221	25	19	0	24	11	0	13
Future Vol, veh/h	20	140	34	30	221	25	19	0	24	11	0	13
Conflicting Peds, #/hr	0	0	0	0	0	8	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	92	92	91	91	92	92	92	91	92	91
Heavy Vehicles, %	1	2	2	2	2	2	2	2	2	1	2	1
Mvmt Flow	22	154	37	33	243	27	21	0	26	12	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	278	0	0	191	0	0	405	561	96	452	566	143
Stage 1	-	-	-	-	-	-	217	217	-	331	331	-
Stage 2	-	-	-	-	-	-	188	344	-	121	235	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.52	6.54	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.51	4.02	3.31
Pot Cap-1 Maneuver	1289	-	-	1380	-	-	530	435	942	493	432	882
Stage 1	-	-	-	-	-	-	765	722	-	659	644	-
Stage 2	-	-	-	-	-	-	796	635	-	873	709	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1279	-	-	1380	-	-	504	412	942	459	410	875
Mov Cap-2 Maneuver	-	-	-	-	-	-	504	412	-	459	410	-
Stage 1	-	-	-	-	-	-	752	710	-	643	621	-
Stage 2	-	-	-	-	-	-	761	612	-	834	697	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.9	10.7	11.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	681	1279	-	-	1380	-	-	618
HCM Lane V/C Ratio	0.069	0.017	-	-	0.024	-	-	0.043
HCM Control Delay (s)	10.7	7.9	-	-	7.7	0.1	-	11.1
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0.1	-	-	0.1

HCM 2010 TWSC
14: Camino Colegio & Mainsail Dr

05/16/2019

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	140	34	30	221	25	19	0	24	11	0	13
Future Vol, veh/h	20	140	34	30	221	25	19	0	24	11	0	13
Conflicting Peds, #/hr	0	0	0	0	0	8	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	140	-	-	160	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	92	92	91	91	92	92	92	91	92	91
Heavy Vehicles, %	1	2	2	2	2	2	2	2	2	1	2	1
Mvmt Flow	22	154	37	33	243	27	21	0	26	12	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	278	0	0	191	0	0	547	561	173	561	566	265
Stage 1	-	-	-	-	-	-	217	217	-	331	331	-
Stage 2	-	-	-	-	-	-	330	344	-	230	235	-
Critical Hdwy	4.11	-	-	4.12	-	-	7.12	6.52	6.22	7.11	6.52	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.11	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.11	5.52	-
Follow-up Hdwy	2.209	-	-	2.218	-	-	3.518	4.018	3.318	3.509	4.018	3.309
Pot Cap-1 Maneuver	1291	-	-	1383	-	-	448	436	871	440	434	776
Stage 1	-	-	-	-	-	-	785	723	-	684	645	-
Stage 2	-	-	-	-	-	-	683	637	-	775	710	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1281	-	-	1383	-	-	426	415	871	411	413	770
Mov Cap-2 Maneuver	-	-	-	-	-	-	426	415	-	411	413	-
Stage 1	-	-	-	-	-	-	772	711	-	667	624	-
Stage 2	-	-	-	-	-	-	654	617	-	739	698	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.8	11.6	11.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	596	1281	-	-	1383	-	-	550
HCM Lane V/C Ratio	0.078	0.017	-	-	0.024	-	-	0.048
HCM Control Delay (s)	11.6	7.9	-	-	7.7	-	-	11.9
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-	-	0.2

HCM 2010 TWSC
15: Bodway Pkwy & Camino Colegio

05/16/2019

Intersection						
Int Delay, s/veh	6.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	93	83	162	123	86	114
Future Vol, veh/h	93	83	162	123	86	114
Conflicting Peds, #/hr	0	11	0	0	0	19
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	140	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	106	94	184	140	98	130

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	690	193	247	0	-	0
Stage 1	182	-	-	-	-	-
Stage 2	508	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	411	849	1319	-	-	-
Stage 1	849	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	340	825	1295	-	-	-
Mov Cap-2 Maneuver	340	-	-	-	-	-
Stage 1	716	-	-	-	-	-
Stage 2	593	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.4	4.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1295	-	340	825	-	-
HCM Lane V/C Ratio	0.142	-	0.311	0.114	-	-
HCM Control Delay (s)	8.2	-	20.3	9.9	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.5	-	1.3	0.4	-	-

HCM 2010 TWSC
16: Bodway Pkwy & Waterside Ln 05/16/2019

Intersection												
Int Delay, s/veh	0.1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	0	0	0	0	273	0	0	159	8
Future Vol, veh/h	0	0	5	0	0	0	0	273	0	0	159	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	88	92	88	92	88	88	88	88	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	0	0	5	0	0	0	0	310	0	0	181	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	186	-	-	312	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	-	-	6.2	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	856	0	0	733	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	856	-	-	732	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	856	-	-	-
HCM Lane V/C Ratio	-	-	0.006	-	-	-
HCM Control Delay (s)	-	-	9.2	0	-	-
HCM Lane LOS	-	-	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	-	-	-

HCM 2010 TWSC
17: Bodway Pkwy & Wisdom Ln 05/16/2019

Intersection												
Int Delay, s/veh	0.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	9	0	0	0	20	255	0	0	147	12
Future Vol, veh/h	6	0	9	0	0	0	20	255	0	0	147	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	50	-	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	88	92	88	92	88	88	88	88	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	7	0	10	0	0	0	22	290	0	0	167	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	508	510	174	515	516	292	180	0	0	292	0	0
Stage 1	174	174	-	336	336	-	-	-	-	-	-	-
Stage 2	334	336	-	179	180	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.52	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4.018	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	475	467	869	474	463	752	1396	-	-	1281	-	-
Stage 1	828	755	-	682	642	-	-	-	-	-	-	-
Stage 2	680	642	-	827	750	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	468	457	869	461	453	751	1396	-	-	1279	-	-
Mov Cap-2 Maneuver	468	457	-	461	453	-	-	-	-	-	-	-
Stage 1	812	755	-	668	629	-	-	-	-	-	-	-
Stage 2	667	629	-	818	750	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	0	0.5	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1396	-	-	647	-	-	1279	-	-
HCM Lane V/C Ratio	0.016	-	-	0.025	-	-	-	-	-
HCM Control Delay (s)	7.6	0	-	10.7	0	0	0	-	-
HCM Lane LOS	A	A	-	B	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	-	0	-	-

HCM 2010 Roundabout
18: SOMO Ave/Valley House Dr & Bodway Pkwy

05/16/2019

Intersection	
Intersection Delay, s/veh	7.0
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	213	433	55	171
Demand Flow Rate, veh/h	217	442	56	174
Vehicles Circulating, veh/h	166	71	315	211
Vehicles Exiting, veh/h	219	300	68	302
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	5
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	6.1	8.1	5.1	5.9
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	217	442	56	174
Cap Entry Lane, veh/h	957	1052	825	915
Entry HV Adj Factor	0.981	0.980	0.977	0.981
Flow Entry, veh/h	213	433	55	171
Cap Entry, veh/h	939	1031	806	897
V/C Ratio	0.227	0.420	0.068	0.190
Control Delay, s/veh	6.1	8.1	5.1	5.9
LOS	A	A	A	A
95th %tile Queue, veh	1	2	0	1

HCM 2010 Signalized Intersection Summary
19: Petaluma Hill Rd & Valley House Dr

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	0	167	2	2	4	342	872	2	0	653	106
Future Volume (veh/h)	75	0	167	2	2	4	342	872	2	0	653	106
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		0.98	1.00		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	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	77	0	77	2	2	1	349	890	2	0	666	104
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	0	146	4	4	2	402	1317	3	3	780	663
Arrive On Green	0.09	0.00	0.09	0.01	0.01	0.01	0.23	0.71	0.71	0.00	0.42	0.42
Sat Flow, veh/h	1774	0	1546	706	706	353	1774	1858	4	1774	1863	1583
Grp Volume(v), veh/h	77	0	77	5	0	0	349	0	892	0	666	104
Grp Sat Flow(s),veh/h/ln	1774	0	1546	1765	0	0	1774	0	1862	1774	1863	1583
Q Serve(g_s), s	2.9	0.0	3.3	0.2	0.0	0.0	13.4	0.0	18.9	0.0	22.8	2.9
Cycle Q Clear(g_c), s	2.9	0.0	3.3	0.2	0.0	0.0	13.4	0.0	18.9	0.0	22.8	2.9
Prop In Lane	1.00		1.00	0.40		0.20	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	0	146	9	0	0	402	0	1320	3	780	663
V/C Ratio(X)	0.46	0.00	0.53	0.54	0.00	0.00	0.87	0.00	0.68	0.00	0.85	0.16
Avail Cap(c_a), veh/h	629	0	548	100	0	0	566	0	1823	101	1335	1134
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	0.0	30.4	35.0	0.0	0.0	26.3	0.0	5.7	0.0	18.5	12.8
Incr Delay (d2), s/veh	2.0	0.0	2.9	16.5	0.0	0.0	10.1	0.0	0.6	0.0	2.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	1.5	0.1	0.0	0.0	7.6	0.0	9.6	0.0	12.3	1.3
LnGrp Delay(d),s/veh	32.2	0.0	33.3	51.4	0.0	0.0	36.4	0.0	6.4	0.0	21.4	12.9
LnGrp LOS	C		C	D			D		A		C	B
Approach Vol, veh/h		154			5			1241			770	
Approach Delay, s/veh		32.8			51.4			14.8			20.2	
Approach LOS		C			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	54.9		11.2	20.5	34.5		4.4
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.0
Max Green Setting (Gmax), s	5.5	69.0		25.0	22.5	50.5		4.0
Max Q Clear Time (g_c+I1), s	10.0	20.9		5.3	15.4	24.8		2.2
Green Ext Time (p_c), s	0.0	7.6		0.6	0.6	4.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	14.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	40	32	8	31	24	52	662	21	31	337	27
Future Vol, veh/h	53	40	32	8	31	24	52	662	21	31	337	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	58	43	35	9	34	26	57	720	23	34	366	29

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1325	1307	381	1335	1310	733	395	0	0	744	0	0
Stage 1	449	449	-	847	847	-	-	-	-	-	-	-
Stage 2	876	858	-	488	463	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	133	160	666	131	159	421	1164	-	-	864	-	-
Stage 1	589	572	-	357	378	-	-	-	-	-	-	-
Stage 2	344	374	-	561	564	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	96	146	666	89	145	421	1164	-	-	863	-	-
Mov Cap-2 Maneuver	96	146	-	89	145	-	-	-	-	-	-	-
Stage 1	560	550	-	339	359	-	-	-	-	-	-	-
Stage 2	278	355	-	470	542	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	123.3	38.2	0.6	0.7
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1164	-	-	143	175	863	-	-
HCM Lane V/C Ratio	0.049	-	-	0.95	0.391	0.039	-	-
HCM Control Delay (s)	8.3	-	-	123.3	38.2	9.3	-	-
HCM Lane LOS	A	-	-	F	E	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	6.7	1.7	0.1	-	-

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	40	32	8	31	24	52	662	21	31	337	27
Future Vol, veh/h	53	40	32	8	31	24	52	662	21	31	337	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	-	-	50	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	58	43	35	9	34	26	57	720	23	34	366	29

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1325	1307	381	1335	1310	733	395	0	0	744	0	0
Stage 1	449	449	-	847	847	-	-	-	-	-	-	-
Stage 2	876	858	-	488	463	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	133	160	666	131	159	421	1164	-	-	864	-	-
Stage 1	589	572	-	357	378	-	-	-	-	-	-	-
Stage 2	344	374	-	561	564	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	96	146	666	89	145	421	1164	-	-	863	-	-
Mov Cap-2 Maneuver	96	146	-	89	145	-	-	-	-	-	-	-
Stage 1	560	550	-	339	359	-	-	-	-	-	-	-
Stage 2	278	355	-	470	542	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	54.1	34.2	0.6	0.7
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1164	-	-	96	224	128	421	863	-	-
HCM Lane V/C Ratio	0.049	-	-	0.6	0.349	0.331	0.062	0.039	-	-
HCM Control Delay (s)	8.3	-	-	87.5	29.5	46.5	14.1	9.3	-	-
HCM Lane LOS	A	-	-	F	D	E	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2.8	1.5	1.3	0.2	0.1	-	-

HCM 2010 TWSC
21: E Railroad Ave & Bodway Pkwy 05/16/2019

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	24	42	73	69	39	15
Future Vol, veh/h	24	42	73	69	39	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	27	48	83	78	44	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	161	0	-	0	224	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	102	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1424	-	-	-	766	932
Stage 1	-	-	-	-	906	-
Stage 2	-	-	-	-	925	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1424	-	-	-	751	932
Mov Cap-2 Maneuver	-	-	-	-	751	-
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	925	-

Approach	EB	WB	SB
HCM Control Delay, s	2.8	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1424	-	-	-	794
HCM Lane V/C Ratio	0.019	-	-	-	0.077
HCM Control Delay (s)	7.6	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

HCM 2010 TWSC
22: Petaluma Hill Rd & E Railroad Ave 05/16/2019

Intersection	
Int Delay, s/veh	14.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	3	49	0	2	10	90	1174	2	5	778	50
Future Vol, veh/h	29	3	49	0	2	10	90	1174	2	5	778	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	3	51	0	2	10	94	1223	2	5	810	52

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2238	2233	810	2285	2284	1224	862	0	0	1225	0	0
Stage 1	820	820	-	1412	1412	-	-	-	-	-	-	-
Stage 2	1418	1413	-	873	872	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 30	43	380	28	40	218	780	-	-	569	-	-
Stage 1	369	389	-	171	204	-	-	-	-	-	-	-
Stage 2	170	204	-	345	368	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 25	37	380	20	35	218	780	-	-	569	-	-
Mov Cap-2 Maneuver	~ 25	37	-	20	35	-	-	-	-	-	-	-
Stage 1	324	385	-	150	179	-	-	-	-	-	-	-
Stage 2	141	179	-	294	365	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 383.3	39.7	0.7	0.1
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	780	-	-	59	116	569	-	-
HCM Lane V/C Ratio	0.12	-	-	1.43	0.108	0.009	-	-
HCM Control Delay (s)	10.2	-	-	$ 383.3	39.7	11.4	-	-
HCM Lane LOS	B	-	-	F	E	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-	7.4	0.4	0	-	-

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

HCM 2010 Signalized Intersection Summary
22: Petaluma Hill Rd & E Railroad Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	3	49	0	2	10	90	1174	2	5	778	50
Future Volume (veh/h)	29	3	49	0	2	10	90	1174	2	5	778	50
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		0.98	1.00		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	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	30	3	51	0	2	10	94	1223	2	5	810	52
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	17	162	0	28	142	130	1262	2	83	1216	1034
Arrive On Green	0.10	0.10	0.10	0.00	0.10	0.10	0.07	0.68	0.68	0.05	0.65	0.65
Sat Flow, veh/h	1217	163	1547	0	271	1353	1774	1859	3	1774	1863	1583
Grp Volume(v), veh/h	33	0	51	0	0	12	94	0	1225	5	810	52
Grp Sat Flow(s),veh/h/ln	1380	0	1547	0	0	1624	1774	0	1862	1774	1863	1583
Q Serve(g_s), s	1.6	0.0	2.6	0.0	0.0	0.6	4.4	0.0	52.8	0.2	22.9	1.0
Cycle Q Clear(g_c), s	2.1	0.0	2.6	0.0	0.0	0.6	4.4	0.0	52.8	0.2	22.9	1.0
Prop In Lane	0.91		1.00	0.00		0.83	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	225	0	162	0	0	170	130	0	1265	83	1216	1034
V/C Ratio(X)	0.15	0.00	0.31	0.00	0.00	0.07	0.73	0.00	0.97	0.06	0.67	0.05
Avail Cap(c_a), veh/h	392	0	343	0	0	370	267	0	1794	83	1601	1361
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	35.5	0.0	0.0	34.6	38.8	0.0	12.9	39.0	9.1	5.3
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.0	0.0	0.1	2.9	0.0	10.5	0.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.1	0.0	0.0	0.3	2.3	0.0	30.2	0.1	11.6	0.4
LnGrp Delay(d),s/veh	35.5	0.0	35.9	0.0	0.0	34.6	41.7	0.0	23.4	39.1	9.4	5.3
LnGrp LOS	D		D			C	D		C	D	A	A
Approach Vol, veh/h		84			12			1319			867	
Approach Delay, s/veh		35.7			34.6			24.7			9.3	
Approach LOS		D			C			C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.5	63.1		14.0	10.8	60.9		14.0
Change Period (Y+Rc), s	4.5	5.0		5.0	4.5	5.0		* 5
Max Green Setting (Gmax), s	4.0	82.5		19.0	12.9	73.6		* 20
Max Q Clear Time (g_c+I1), s	2.2	54.8		4.6	6.4	24.9		2.6
Green Ext Time (p_c), s	0.0	3.3		0.0	0.0	1.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	100	13	9	134	582	10	635	7	385	402	15
Future Volume (veh/h)	20	100	13	9	134	582	10	635	7	385	402	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	1	0	0	2	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
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	1976	1937	1976	1976	1937	1976	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	21	105	11	9	141	511	11	668	5	405	423	12
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	372	36	36	137	477	2	401	2	524	542	13
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.22	0.22	0.22	0.26	0.26	0.26
Sat Flow, veh/h	108	1009	98	8	372	1293	31	1888	14	1774	1802	51
Grp Volume(v), veh/h	137	0	0	661	0	0	684	0	0	405	0	435
Grp Sat Flow(s),veh/h/ln	1214	0	0	1673	0	0	1933	0	0	1774	0	1853
Q Serve(g_s), s	0.0	0.0	0.0	14.0	0.0	0.0	22.5	0.0	0.0	22.3	0.0	23.2
Cycle Q Clear(g_c), s	4.8	0.0	0.0	39.5	0.0	0.0	22.5	0.0	0.0	22.3	0.0	23.2
Prop In Lane	0.15		0.08	0.01		0.77	0.02		0.01	1.00		0.03
Lane Grp Cap(c), veh/h	487	0	0	634	0	0	396	0	0	524	0	479
V/C Ratio(X)	0.28	0.00	0.00	1.04	0.00	0.00	1.73	0.00	0.00	0.77	0.00	0.91
Avail Cap(c_a), veh/h	514	0	0	688	0	0	429	0	0	604	0	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)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.1	0.0	0.0	36.3	0.0	0.0	43.8	0.0	0.0	34.5	0.0	36.8
Incr Delay (d2), s/veh	0.1	0.0	0.0	46.2	0.0	0.0	337.8	0.0	0.0	4.4	0.0	12.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	1.4
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	27.3	0.0	0.0	50.1	0.0	0.0	11.6	0.0	14.0
LnGrp Delay(d),s/veh	23.2	0.0	0.0	82.4	0.0	0.0	386.8	0.0	0.0	38.9	0.0	50.5
LnGrp LOS	C			F			F			D		D
Approach Vol, veh/h		137			661			684			840	
Approach Delay, s/veh		23.2			82.4			386.8			44.9	
Approach LOS		C			F			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		27.0		44.0		30.4		44.0
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		22.5		39.5		34.5		39.5
Max Q Clear Time (g_c+I1), s		24.5		6.8		25.2		41.5
Green Ext Time (p_c), s		0.0		0.3		0.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	155.0
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	100	13	9	134	582	10	635	7	385	402	15
Future Volume (veh/h)	20	100	13	9	134	582	10	635	7	385	402	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	1	0	0	2	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
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	1976	1937	1976	1976	1937	1937	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	21	105	11	9	141	511	11	668	5	405	423	12
Adj No. of Lanes	0	1	0	0	1	1	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	347	33	46	461	843	4	676	3	482	496	12
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.36	0.36	0.36	0.25	0.25	0.25
Sat Flow, veh/h	150	1412	136	41	1877	1611	31	1888	14	1774	1802	51
Grp Volume(v), veh/h	137	0	0	150	0	511	684	0	0	405	0	435
Grp Sat Flow(s),veh/h/ln	1699	0	0	1918	0	1611	1933	0	0	1774	0	1853
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	23.7	35.9	0.0	0.0	22.8	0.0	23.6
Cycle Q Clear(g_c), s	6.0	0.0	0.0	6.5	0.0	23.7	35.9	0.0	0.0	22.8	0.0	23.6
Prop In Lane	0.15		0.08	0.06		1.00	0.02		0.01	1.00		0.03
Lane Grp Cap(c), veh/h	456	0	0	507	0	843	673	0	0	482	0	475
V/C Ratio(X)	0.30	0.00	0.00	0.30	0.00	0.61	1.02	0.00	0.00	0.84	0.00	0.91
Avail Cap(c_a), veh/h	501	0	0	559	0	857	703	0	0	532	0	556
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.4	0.0	0.0	32.6	0.0	18.0	35.2	0.0	0.0	36.3	0.0	37.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.8	37.9	0.0	0.0	9.8	0.0	17.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	1.5
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	3.6	0.0	15.0	27.9	0.0	0.0	12.4	0.0	14.8
LnGrp Delay(d),s/veh	32.5	0.0	0.0	32.7	0.0	18.9	78.4	0.0	0.0	46.1	0.0	56.0
LnGrp LOS	C			C		B	F			D		E
Approach Vol, veh/h		137			661			684			840	
Approach Delay, s/veh		32.5			22.0			78.4			51.2	
Approach LOS		C			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		42.0		30.4		30.7		30.4
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		37.5		28.1		30.9		28.1
Max Q Clear Time (g_c+I1), s		37.9		8.0		25.6		25.7
Green Ext Time (p_c), s		0.0		0.2		0.6		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	49.8
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
24: N McDowell Blvd & Old Redwood Hwy

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	712	479	93	570	6	697	43	205	13	77	246
Future Volume (veh/h)	72	712	479	93	570	6	697	43	205	13	77	246
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	80	791	0	103	633	4	731	0	106	14	86	125
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	1.00	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	1548	1055	133	1586	10	813	0	356	195	205	171
Arrive On Green	0.10	0.58	0.00	0.08	0.44	0.44	0.23	0.00	0.23	0.11	0.11	0.11
Sat Flow, veh/h	1774	3539	1583	1774	3605	23	3548	0	1555	1774	1863	1557
Grp Volume(v), veh/h	80	791	0	103	311	326	731	0	106	14	86	125
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1858	1774	0	1555	1774	1863	1557
Q Serve(g_s), s	5.6	17.3	0.0	7.4	15.5	15.5	26.0	0.0	7.3	0.9	5.6	10.1
Cycle Q Clear(g_c), s	5.6	17.3	0.0	7.4	15.5	15.5	26.0	0.0	7.3	0.9	5.6	10.1
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	129	1548	1055	133	778	817	813	0	356	195	205	171
V/C Ratio(X)	0.62	0.51	0.00	0.77	0.40	0.40	0.90	0.00	0.30	0.07	0.42	0.73
Avail Cap(c_a), veh/h	150	1548	1055	150	778	817	1054	0	462	412	433	362
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.0	18.9	0.0	59.0	24.7	24.7	48.6	0.0	41.4	51.9	54.0	56.0
Incr Delay (d2), s/veh	2.8	1.1	0.0	16.8	1.5	1.5	7.4	0.0	0.2	0.1	0.5	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	8.7	0.0	4.3	7.9	8.3	13.6	0.0	3.2	0.5	2.9	4.5
LnGrp Delay(d),s/veh	59.8	20.0	0.0	75.8	26.3	26.2	56.0	0.0	41.6	52.0	54.5	58.2
LnGrp LOS	E	B		E	C	C	E		D	D	D	E
Approach Vol, veh/h		871			740			837			225	
Approach Delay, s/veh		23.6			33.1			54.2			56.4	
Approach LOS		C			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.8	62.0		19.1	13.4	62.3		35.2
Change Period (Y+Rc), s	4.0	5.1		* 4.8	4.0	* 5.1		5.4
Max Green Setting (Gmax), s	10.0	30.9		* 30	11.0	* 31		38.6
Max Q Clear Time (g_c+I1), s	9.4	19.3		12.1	7.6	17.5		28.0
Green Ext Time (p_c), s	0.0	5.8		0.5	0.0	4.8		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	38.6
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
25: US 101 NB Off-ramp & Old Redwood Hwy

05/16/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	933	596	0	1528	95	328
Future Volume (veh/h)	933	596	0	1528	95	328
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	993	0	0	1626	101	236
Adj No. of Lanes	2	1	0	2	2	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2567	1148	0	2567	427	345
Arrive On Green	0.73	0.00	0.00	0.96	0.12	0.12
Sat Flow, veh/h	3632	1583	0	3725	3442	2787
Grp Volume(v), veh/h	993	0	0	1626	101	236
Grp Sat Flow(s),veh/h/ln	1770	1583	0	1770	1721	1393
Q Serve(g_s), s	7.0	0.0	0.0	2.7	1.7	5.3
Cycle Q Clear(g_c), s	7.0	0.0	0.0	2.7	1.7	5.3
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2567	1148	0	2567	427	345
V/C Ratio(X)	0.39	0.00	0.00	0.63	0.24	0.68
Avail Cap(c_a), veh/h	2567	1148	0	2567	810	656
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.74	1.00	1.00
Uniform Delay (d), s/veh	3.4	0.0	0.0	0.4	25.7	27.3
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.9	0.3	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	0.0	0.0	1.2	0.8	2.1
LnGrp Delay(d),s/veh	3.9	0.0	0.0	1.3	26.0	29.6
LnGrp LOS	A			A	C	C
Approach Vol, veh/h	993			1626	337	
Approach Delay, s/veh	3.9			1.3	28.5	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		52.2				52.2		12.8
Change Period (Y+Rc), s		5.1				5.1		4.7
Max Green Setting (Gmax), s		39.9				39.9		15.3
Max Q Clear Time (g_c+I1), s		9.0				4.7		7.3
Green Ext Time (p_c), s		11.4				22.7		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	5.2
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1: Snyder Ln & Rohnert Park Expwy

04/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	275	581	370	75	538	227	340	360	69	240	412	218
Future Volume (veh/h)	275	581	370	75	538	227	340	360	69	240	412	218
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		0.98	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	316	668	408	86	618	253	391	414	77	276	474	241
Adj No. of Lanes	2	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	495	932	663	220	863	607	536	828	558	494	785	569
Arrive On Green	0.14	0.26	0.26	0.12	0.24	0.24	0.16	0.23	0.23	0.14	0.22	0.22
Sat Flow, veh/h	3442	3539	1580	1774	3539	1557	3442	3539	1546	3442	3539	1539
Grp Volume(v), veh/h	316	668	408	86	618	253	391	414	77	276	474	241
Grp Sat Flow(s),veh/h/ln	1721	1770	1580	1774	1770	1557	1721	1770	1546	1721	1770	1539
Q Serve(g_s), s	7.2	14.3	16.9	3.7	13.3	9.9	9.0	8.5	2.8	6.2	10.0	9.8
Cycle Q Clear(g_c), s	7.2	14.3	16.9	3.7	13.3	9.9	9.0	8.5	2.8	6.2	10.0	9.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	495	932	663	220	863	607	536	828	558	494	785	569
V/C Ratio(X)	0.64	0.72	0.62	0.39	0.72	0.42	0.73	0.50	0.14	0.56	0.60	0.42
Avail Cap(c_a), veh/h	619	1922	1105	319	1918	1071	619	1918	1035	619	1918	1062
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	27.9	19.0	33.6	28.9	18.7	33.5	27.7	18.1	33.2	29.2	19.9
Incr Delay (d2), s/veh	0.6	0.4	0.3	0.4	0.4	0.2	2.8	0.2	0.0	0.4	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	7.0	7.4	1.8	6.6	4.3	4.5	4.2	1.2	3.0	4.9	4.2
LnGrp Delay(d),s/veh	34.3	28.3	19.3	34.0	29.3	18.9	36.4	27.9	18.1	33.6	29.4	20.1
LnGrp LOS	C	C	B	C	C	B	D	C	B	C	C	C
Approach Vol, veh/h		1392			957			882			991	
Approach Delay, s/veh		27.0			27.0			30.8			28.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	25.3	14.4	27.8	17.0	24.3	16.0	26.1
Change Period (Y+Rc), s	4.0	5.8	4.0	* 5.8	4.0	5.8	4.0	* 5.8
Max Green Setting (Gmax), s	15.0	45.2	15.0	* 45	15.0	45.2	15.0	* 45
Max Q Clear Time (g_c+I1), s	8.2	10.5	5.7	18.9	11.0	12.0	9.2	15.3
Green Ext Time (p_c), s	0.1	0.9	0.0	1.7	0.1	1.1	0.1	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	28.1
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
2: US 101 SB Ramps & Gravenstein Hwy

04/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1001	470	195	988	0	0	0	0	800	4	376
Future Volume (veh/h)	0	1001	470	195	988	0	0	0	0	800	4	376
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				8	12	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1937	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	1054	339	205	1040	0				842	4	295
Adj No. of Lanes	0	2	1	1	2	0				2	1	0
Peak Hour Factor	0.98	0.95	0.95	0.95	0.95	0.98				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1335	611	370	2218	0				1001	77	387
Arrive On Green	0.00	0.38	0.38	0.28	0.84	0.00				0.29	0.29	0.29
Sat Flow, veh/h	0	3632	1621	1774	3632	0				3442	21	1565
Grp Volume(v), veh/h	0	1054	339	205	1040	0				842	0	299
Grp Sat Flow(s),veh/h/ln	0	1770	1621	1774	1770	0				1721	0	1587
Q Serve(g_s), s	0.0	29.1	18.1	10.8	8.5	0.0				25.4	0.0	18.2
Cycle Q Clear(g_c), s	0.0	29.1	18.1	10.8	8.5	0.0				25.4	0.0	18.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	1335	611	370	2218	0				1001	0	476
V/C Ratio(X)	0.00	0.79	0.55	0.55	0.47	0.00				0.84	0.00	0.63
Avail Cap(c_a), veh/h	0	1335	611	379	2236	0				1111	0	512
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.96	0.96	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	30.4	27.0	35.4	4.2	0.0				37.1	0.0	35.0
Incr Delay (d2), s/veh	0.0	4.8	3.6	0.9	0.7	0.0				5.0	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				2.9	0.0	12.3
%ile BackOfQ(50%),veh/ln	0.0	15.1	8.7	5.4	4.3	0.0				13.7	0.0	11.4
LnGrp Delay(d),s/veh	0.0	35.2	30.6	36.3	4.9	0.0				45.0	0.0	48.7
LnGrp LOS		D	C	D	A					D		D
Approach Vol, veh/h		1393			1245						1141	
Approach Delay, s/veh		34.1			10.0						45.9	
Approach LOS		C			B						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	8.0	46.0		36.0		74.0		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	9.5	41.5		35.5		65.5		
Max Q Clear Time (g_c+I1), s	2.8	31.1		27.4		10.5		
Green Ext Time (p_c), s	0.1	5.9		4.1		8.0		

Intersection Summary	
HCM 2010 Ctrl Delay	29.7
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
3: US 101 NB Off-ramp & Gravenstein Hwy

04/22/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1796	0	0	764	409	374
Future Volume (veh/h)	1796	0	0	764	409	374
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863
Adj Flow Rate, veh/h	1852	0	0	788	422	343
Adj No. of Lanes	2	0	0	3	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	2338	0	0	3360	886	408
Arrive On Green	1.00	0.00	0.00	0.66	0.26	0.26
Sat Flow, veh/h	3725	0	0	5421	3442	1583
Grp Volume(v), veh/h	1852	0	0	788	422	343
Grp Sat Flow(s),veh/h/ln	1770	0	0	1695	1721	1583
Q Serve(g_s), s	0.0	0.0	0.0	6.8	11.4	22.6
Cycle Q Clear(g_c), s	0.0	0.0	0.0	6.8	11.4	22.6
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2338	0	0	3360	886	408
V/C Ratio(X)	0.79	0.00	0.00	0.23	0.48	0.84
Avail Cap(c_a), veh/h	2338	0	0	3360	1048	482
HCM Platoon Ratio	2.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.53	0.00	0.00	0.71	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	7.5	34.6	38.7
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.1	0.4	11.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	3.2	5.4	11.2
LnGrp Delay(d),s/veh	1.5	0.0	0.0	7.6	35.0	49.8
LnGrp LOS	A			A	C	D
Approach Vol, veh/h	1852			788	765	
Approach Delay, s/veh	1.5			7.6	41.6	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		77.2				77.2		32.8
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		67.5				67.5		33.5
Max Q Clear Time (g_c+I1), s		2.0				8.8		24.6
Green Ext Time (p_c), s		46.5				11.8		3.7

Intersection Summary	
HCM 2010 Ctrl Delay	11.9
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Old Redwood Hwy & Gravenstein Hwy/Gravenstein Way

04/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	983	168	1020	79	62	80	354	721	35	35	228	274
Future Volume (veh/h)	983	168	1020	79	62	80	354	721	35	35	228	274
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	3	0	0	0	0	0	0	5	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	1.00		0.94	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	1013	173	0	81	64	66	365	743	29	36	235	282
Adj No. of Lanes	2	1	1	1	1	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1091	591	502	207	95	98	408	826	26	273	287	746
Arrive On Green	0.32	0.32	0.00	0.12	0.12	0.12	0.23	0.23	0.23	0.15	0.15	0.15
Sat Flow, veh/h	3442	1863	1583	1774	815	841	1774	3553	139	1774	1863	1583
Grp Volume(v), veh/h	1013	173	0	81	0	130	365	389	383	36	235	282
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	0	1656	1774	1863	1828	1774	1863	1583
Q Serve(g_s), s	27.4	6.7	0.0	4.1	0.0	7.2	19.2	19.6	19.6	1.7	11.7	11.0
Cycle Q Clear(g_c), s	27.4	6.7	0.0	4.1	0.0	7.2	19.2	19.6	19.6	1.7	11.7	11.0
Prop In Lane	1.00		1.00	1.00		0.51	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	1091	591	502	207	0	194	408	429	422	273	287	746
V/C Ratio(X)	0.93	0.29	0.00	0.39	0.00	0.67	0.89	0.91	0.91	0.13	0.82	0.38
Avail Cap(c_a), veh/h	1109	600	510	443	0	413	415	436	428	461	484	913
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	24.8	0.0	39.4	0.0	40.8	36.0	36.4	36.4	35.2	39.5	16.4
Incr Delay (d2), s/veh	12.8	0.1	0.0	0.4	0.0	1.5	20.3	21.8	21.8	0.1	2.2	0.1
Initial Q Delay(d3),s/veh	0.8	0.0	0.0	0.0	0.0	0.0	0.0	2.7	2.7	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.2	3.5	0.0	2.0	0.0	3.4	11.7	13.3	13.1	0.8	6.3	7.5
LnGrp Delay(d),s/veh	45.6	24.9	0.0	39.8	0.0	42.3	56.2	60.9	60.9	35.3	41.7	16.5
LnGrp LOS	D	C		D		D	E	E	E	D	D	B
Approach Vol, veh/h		1186			211			1137			553	
Approach Delay, s/veh		42.6			41.3			59.4			28.4	
Approach LOS		D			D			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		35.0		19.3		15.3		26.6
Change Period (Y+Rc), s		4.5		4.5		4.0		4.5
Max Green Setting (Gmax), s		31.0		25.0		24.0		22.5
Max Q Clear Time (g_c+I1), s		29.4		13.7		9.2		21.6
Green Ext Time (p_c), s		1.1		1.1		0.2		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	46.1
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave

04/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	345	48	35	258	434	18	458	15	563	515	115
Future Volume (veh/h)	162	345	48	35	258	434	18	458	15	563	515	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	4	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.95	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	167	356	47	36	266	401	19	472	14	580	531	114
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	634	520	45	511	439	29	754	22	413	803	665
Arrive On Green	0.08	0.34	0.34	0.03	0.29	0.29	0.02	0.22	0.22	0.23	0.43	0.43
Sat Flow, veh/h	1774	1863	1528	1774	1770	1521	1774	3504	104	1774	1863	1541
Grp Volume(v), veh/h	167	356	47	36	266	401	19	238	248	580	531	114
Grp Sat Flow(s),veh/h/ln	1774	1863	1528	1774	1770	1521	1774	1770	1838	1774	1863	1541
Q Serve(g_s), s	7.5	15.1	2.0	2.0	12.2	24.7	1.0	11.8	11.8	22.5	21.9	4.4
Cycle Q Clear(g_c), s	7.5	15.1	2.0	2.0	12.2	24.7	1.0	11.8	11.8	22.5	21.9	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	138	634	520	45	511	439	29	381	396	413	803	665
V/C Ratio(X)	1.21	0.56	0.09	0.79	0.52	0.91	0.65	0.62	0.63	1.41	0.66	0.17
Avail Cap(c_a), veh/h	138	635	521	83	549	471	99	585	608	413	945	782
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.6	26.0	21.7	46.9	28.8	33.2	47.3	34.4	34.4	37.1	21.9	16.9
Incr Delay (d2), s/veh	145.6	0.7	0.0	10.8	0.3	20.6	8.6	0.6	0.6	196.7	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.3	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	7.8	0.9	1.1	6.0	12.9	0.6	5.8	6.1	37.4	11.4	1.9
LnGrp Delay(d),s/veh	190.3	26.7	21.7	57.7	29.1	53.8	55.9	35.1	35.1	258.2	22.7	16.9
LnGrp LOS	F	C	C	E	C	D	E	D	D	F	C	B
Approach Vol, veh/h		570			703			505			1225	
Approach Delay, s/veh		74.2			44.7			35.8			133.7	
Approach LOS		E			D			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	37.5	6.1	46.2	12.0	32.4	27.0	25.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	4.5	33.0	5.4	49.1	7.5	30.0	22.5	32.0
Max Q Clear Time (g_c+I1), s	4.0	17.1	3.0	23.9	9.5	26.7	24.5	13.8
Green Ext Time (p_c), s	0.0	0.7	0.0	1.1	0.0	0.7	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	85.1
HCM 2010 LOS	F

HCM 2010 AWSC
6: La Salle Ave & E Cotati Ave

04/22/2019

Intersection	
Intersection Delay, s/veh	19.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	1034	203	92	719	1	186	0	101	11	0	17
Future Vol, veh/h	1	1034	203	92	719	1	186	0	101	11	0	17
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1077	211	96	749	1	194	0	105	11	0	18
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	183.8	54.7	32.6	13.3
HCM LOS	F	F	D	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	65%	100%	0%	0%	100%	0%	0%	39%
Vol Thru, %	0%	0%	100%	63%	0%	100%	100%	0%
Vol Right, %	35%	0%	0%	37%	0%	0%	0%	61%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	287	1	689	548	92	479	241	28
LT Vol	186	1	0	0	92	0	0	11
Through Vol	0	0	689	345	0	479	240	0
RT Vol	101	0	0	203	0	0	1	17
Lane Flow Rate	299	1	718	570	96	499	251	29
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.724	0.002	1.474	1.129	0.213	1.038	0.521	0.076
Departure Headway (Hd)	9.208	8.166	7.648	7.379	8.438	7.921	7.918	9.821
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	395	441	481	496	428	464	459	367
Service Time	6.908	5.866	5.348	5.079	6.138	5.621	5.618	7.521
HCM Lane V/C Ratio	0.757	0.002	1.493	1.149	0.224	1.075	0.547	0.079
HCM Control Delay	32.6	10.9	245.2	106.9	13.4	80.6	18.9	13.3
HCM Lane LOS	D	B	F	F	B	F	C	B
HCM 95th-tile Q	5.6	0	35.3	18.8	0.8	14.4	2.9	0.2

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave

04/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	499	170	306	646	58	135	133	325	48	176	97
Future Volume (veh/h)	134	499	170	306	646	58	135	133	325	48	176	97
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	2	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.95	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	141	525	147	322	680	50	142	140	316	51	185	65
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	657	183	337	1137	82	183	442	366	190	316	111
Arrive On Green	0.10	0.24	0.24	0.19	0.34	0.34	0.10	0.24	0.24	0.11	0.24	0.24
Sat Flow, veh/h	1774	2713	755	1774	3328	244	1774	1863	1541	1774	1310	460
Grp Volume(v), veh/h	141	341	331	322	361	369	142	140	316	51	0	250
Grp Sat Flow(s),veh/h/ln	1774	1770	1698	1774	1770	1803	1774	1863	1541	1774	0	1770
Q Serve(g_s), s	6.5	15.3	15.4	15.1	14.2	14.3	6.6	5.2	16.5	2.2	0.0	10.5
Cycle Q Clear(g_c), s	6.5	15.3	15.4	15.1	14.2	14.3	6.6	5.2	16.5	2.2	0.0	10.5
Prop In Lane	1.00		0.44	1.00		0.14	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	183	428	411	337	604	615	183	442	366	190	0	427
V/C Ratio(X)	0.77	0.80	0.80	0.95	0.60	0.60	0.78	0.32	0.86	0.27	0.00	0.59
Avail Cap(c_a), veh/h	316	614	590	337	656	669	190	598	495	190	0	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.8	30.0	30.0	33.7	23.0	23.0	36.8	26.5	30.8	34.6	0.0	28.2
Incr Delay (d2), s/veh	2.6	2.9	3.3	36.7	0.8	0.8	15.9	0.2	9.1	0.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	7.7	7.5	10.9	7.2	7.3	4.0	2.7	8.0	1.1	0.0	5.2
LnGrp Delay(d),s/veh	39.4	32.9	33.3	70.5	23.8	23.8	52.7	26.6	39.8	34.8	0.0	28.7
LnGrp LOS	D	C	C	E	C	C	D	C	D	C		C
Approach Vol, veh/h		813			1052			598			301	
Approach Delay, s/veh		34.2			38.1			39.8			29.7	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	25.2	12.7	25.2	12.7	33.6	13.0	24.9
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	16.0	29.2	9.0	27.0	15.0	31.2	9.0	27.0
Max Q Clear Time (g_c+I1), s	17.1	17.4	8.6	12.5	8.5	16.3	4.2	18.5
Green Ext Time (p_c), s	0.0	1.2	0.0	0.4	0.0	1.4	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	36.4
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

04/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	428	318	77	13	506	485	53	138	12	271	205	415
Future Volume (veh/h)	428	318	77	13	506	485	53	138	12	271	205	415
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	441	328	49	13	522	295	55	142	8	279	211	297
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	437	1518	811	50	746	606	171	494	28	317	423	740
Arrive On Green	0.25	0.43	0.43	0.03	0.21	0.21	0.10	0.15	0.15	0.18	0.23	0.23
Sat Flow, veh/h	1774	3539	1534	1774	3539	1532	1774	3403	190	1774	1863	1541
Grp Volume(v), veh/h	441	328	49	13	522	295	55	73	77	279	211	297
Grp Sat Flow(s),veh/h/ln	1774	1770	1534	1774	1770	1532	1774	1770	1824	1774	1863	1541
Q Serve(g_s), s	20.0	4.7	1.3	0.6	11.1	11.8	2.3	3.0	3.0	12.4	8.0	10.2
Cycle Q Clear(g_c), s	20.0	4.7	1.3	0.6	11.1	11.8	2.3	3.0	3.0	12.4	8.0	10.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	437	1518	811	50	746	606	171	257	265	317	423	740
V/C Ratio(X)	1.01	0.22	0.06	0.26	0.70	0.49	0.32	0.29	0.29	0.88	0.50	0.40
Avail Cap(c_a), veh/h	437	1661	873	328	1443	907	437	634	654	437	668	942
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.6	14.6	9.4	38.6	29.7	18.7	34.2	31.0	31.0	32.5	27.3	13.9
Incr Delay (d2), s/veh	45.3	0.0	0.0	1.0	0.4	0.2	0.4	0.2	0.2	11.6	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.2	2.3	0.5	0.3	5.5	5.0	1.2	1.5	1.6	7.1	4.1	4.3
LnGrp Delay(d),s/veh	76.0	14.6	9.5	39.6	30.1	19.0	34.6	31.2	31.2	44.1	27.7	14.1
LnGrp LOS	F	B	A	D	C	B	C	C	C	D	C	B
Approach Vol, veh/h		818			830			205			787	
Approach Delay, s/veh		47.4			26.3			32.1			28.4	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.3	39.7	11.8	23.3	24.0	22.0	18.5	16.7
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	15.0	38.1	20.0	29.1	20.0	33.1	20.0	29.1
Max Q Clear Time (g_c+I1), s	12.0	6.7	4.3	12.2	22.0	13.8	14.4	5.0
Green Ext Time (p_c), s	0.0	0.8	0.0	0.5	0.0	1.4	0.1	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	33.9
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

04/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	164	539	79	232	608	18	159	53	161	77	50	288
Future Volume (veh/h)	164	539	79	232	608	18	159	53	161	77	50	288
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	173	567	60	244	640	18	167	56	105	81	53	183
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	210	821	87	285	1042	29	327	343	280	220	144	485
Arrive On Green	0.12	0.25	0.25	0.16	0.30	0.30	0.18	0.18	0.18	0.20	0.20	0.20
Sat Flow, veh/h	1774	3230	341	1774	3513	99	1774	1863	1517	1093	715	1477
Grp Volume(v), veh/h	173	310	317	244	322	336	167	56	105	134	0	183
Grp Sat Flow(s),veh/h/ln	1774	1770	1802	1774	1770	1842	1774	1863	1517	1808	0	1477
Q Serve(g_s), s	9.2	15.3	15.4	13.0	15.2	15.2	8.2	2.4	5.9	6.2	0.0	9.3
Cycle Q Clear(g_c), s	9.2	15.3	15.4	13.0	15.2	15.2	8.2	2.4	5.9	6.2	0.0	9.3
Prop In Lane	1.00		0.19	1.00		0.05	1.00		1.00	0.60		1.00
Lane Grp Cap(c), veh/h	210	450	458	285	525	546	327	343	280	364	0	485
V/C Ratio(X)	0.82	0.69	0.69	0.86	0.61	0.61	0.51	0.16	0.38	0.37	0.00	0.38
Avail Cap(c_a), veh/h	422	720	733	568	867	902	517	543	442	525	0	616
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.7	32.6	32.7	39.5	29.3	29.3	35.5	33.2	34.6	33.3	0.0	25.6
Incr Delay (d2), s/veh	7.9	4.0	4.0	7.3	2.5	2.4	2.6	0.5	1.8	1.3	0.0	1.0
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	5.0	8.0	8.2	7.0	7.8	8.1	4.3	1.3	2.6	3.2	0.0	3.9
LnGrp Delay(d),s/veh	49.6	36.6	36.6	46.9	31.8	31.7	38.2	33.7	36.4	34.7	0.0	26.6
LnGrp LOS	D	D	D	D	C	C	D	C	D	C		C
Approach Vol, veh/h		800			902			328			317	
Approach Delay, s/veh		39.4			35.8			36.8			30.0	
Approach LOS		D			D			D			C	

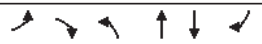
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.5	29.5		24.7	15.4	33.6		23.0
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		5.2
Max Green Setting (Gmax), s	7.0	39.4		* 28	23.0	47.4		28.2
Max Q Clear Time (g_c+I1), s	5.0	17.4		11.3	11.2	17.2		10.2
Green Ext Time (p_c), s	0.6	7.0		2.6	0.3	8.4		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	36.4
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

04/22/2019



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	423	356	255	796	968	553
Future Volume (veh/h)	423	356	255	796	968	553
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.98	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1976	1863	1863	1863	1863
Adj Flow Rate, veh/h	436	202	263	821	998	502
Adj No. of Lanes	0	0	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	391	181	192	1110	846	704
Arrive On Green	0.32	0.32	0.11	0.60	0.45	0.45
Sat Flow, veh/h	1204	558	1774	1863	1863	1550
Grp Volume(v), veh/h	639	0	263	821	998	502
Grp Sat Flow(s),veh/h/ln	1764	0	1774	1863	1863	1550
Q Serve(g_s), s	39.0	0.0	13.0	38.2	54.5	31.4
Cycle Q Clear(g_c), s	39.0	0.0	13.0	38.2	54.5	31.4
Prop In Lane	0.68	0.32	1.00			1.00
Lane Grp Cap(c), veh/h	573	0	192	1110	846	704
V/C Ratio(X)	1.11	0.00	1.37	0.74	1.18	0.71
Avail Cap(c_a), veh/h	573	0	192	1110	846	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	0.0	53.5	17.5	32.8	26.4
Incr Delay (d2), s/veh	73.0	0.0	195.3	2.4	93.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	0.0	16.8	20.1	49.8	14.0
LnGrp Delay(d),s/veh	113.5	0.0	248.8	19.9	125.7	29.4
LnGrp LOS	F		F	B	F	C
Approach Vol, veh/h	639			1084	1500	
Approach Delay, s/veh	113.5			75.4	93.5	
Approach LOS	F			E	F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		77.0		43.0	17.0	60.0		
Change Period (Y+Rc), s		5.5		4.0	4.0	5.5		
Max Green Setting (Gmax), s		71.5		39.0	13.0	54.5		
Max Q Clear Time (g_c+I1), s		40.2		41.0	15.0	56.5		
Green Ext Time (p_c), s		1.6		0.0	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	91.4
HCM 2010 LOS	F

Notes

HCM 2010 AWSC
12: Camino Colegio & Mitchell Dr 04/22/2019

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	167	273	54	32	2
Future Vol, veh/h	9	167	273	54	32	2
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	2	2	0	0	0
Mvmt Flow	10	192	314	62	37	2
Number of Lanes	1	2	2	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	3
HCM Control Delay	7.4	9.3	9.3
HCM LOS	A	A	A

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	0%	0%	94%
Vol Thru, %	0%	100%	100%	100%	63%	0%
Vol Right, %	0%	0%	0%	0%	37%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	84	84	182	145	34
LT Vol	9	0	0	0	0	32
Through Vol	0	84	84	182	91	0
RT Vol	0	0	0	0	54	2
Lane Flow Rate	10	96	96	209	167	39
Geometry Grp	7	7	7	8	8	7
Degree of Util (X)	0.016	0.133	0.086	0.291	0.218	0.067
Departure Headway (Hd)	5.444	4.976	3.235	5	4.705	6.127
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	659	722	1108	720	763	585
Service Time	3.163	2.695	0.954	2.724	2.428	3.863
HCM Lane V/C Ratio	0.015	0.133	0.087	0.29	0.219	0.067
HCM Control Delay	8.3	8.5	6.3	9.8	8.7	9.3
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0	0.5	0.3	1.2	0.8	0.2

HCM 2010 TWSC
13: Camino Colegio & Manchester Ave 04/22/2019

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	143	34	8	175	18	145	21	48	6	3	7
Future Vol, veh/h	22	143	34	8	175	18	145	21	48	6	3	7
Conflicting Peds, #/hr	0	0	7	0	0	5	0	0	4	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	60	-	60	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	24	154	37	9	188	19	156	23	52	6	3	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	212	0	0	198	0	0	345	458	107	362	467	112
Stage 1	-	-	-	-	-	-	228	228	-	221	221	-
Stage 2	-	-	-	-	-	-	117	230	-	141	246	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	1363	-	-	1379	-	-	588	500	930	571	494	923
Stage 1	-	-	-	-	-	-	757	717	-	764	722	-
Stage 2	-	-	-	-	-	-	878	715	-	850	704	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1357	-	-	1370	-	-	564	482	920	506	476	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	564	482	-	506	476	-
Stage 1	-	-	-	-	-	-	739	699	-	747	713	-
Stage 2	-	-	-	-	-	-	859	706	-	760	686	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.3	12.6	11
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	564	482	920	1357	-	-	1370	-	-	620
HCM Lane V/C Ratio	0.276	0.047	0.056	0.017	-	-	0.006	-	-	0.028
HCM Control Delay (s)	13.8	12.8	9.1	7.7	-	-	7.6	-	-	11
HCM Lane LOS	B	B	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1.1	0.1	0.2	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	22	171	182	28	12	14
Future Vol, veh/h	22	171	182	28	12	14
Conflicting Peds, #/hr	0	0	0	8	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	110	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	2	2	2	1	1
Mvmt Flow	24	188	200	31	13	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	239	0	-	0	366	124
Stage 1	-	-	-	-	224	-
Stage 2	-	-	-	-	142	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	1332	-	-	-	610	907
Stage 1	-	-	-	-	795	-
Stage 2	-	-	-	-	873	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1322	-	-	-	589	900
Mov Cap-2 Maneuver	-	-	-	-	589	-
Stage 1	-	-	-	-	774	-
Stage 2	-	-	-	-	866	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1322	-	-	-	724
HCM Lane V/C Ratio	0.018	-	-	-	0.039
HCM Control Delay (s)	7.8	-	-	-	10.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	54	124	181	151	112	25
Future Vol, veh/h	54	124	181	151	112	25
Conflicting Peds, #/hr	0	11	0	0	0	19
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	140	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	61	141	206	172	127	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	744	171	174	0	-	0
Stage 1	160	-	-	-	-	-
Stage 2	584	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	382	873	1403	-	-	-
Stage 1	869	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	314	848	1378	-	-	-
Mov Cap-2 Maneuver	314	-	-	-	-	-
Stage 1	726	-	-	-	-	-
Stage 2	547	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.9	4.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1378	-	314	848	-	-
HCM Lane V/C Ratio	0.149	-	0.195	0.166	-	-
HCM Control Delay (s)	8.1	-	19.2	10.1	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.5	-	0.7	0.6	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	37	283	18	0	233
Future Vol, veh/h	0	37	283	18	0	233
Conflicting Peds, #/hr	0	0	0	2	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	42	322	20	0	265

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	334	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	712	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	711	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	711	-
HCM Lane V/C Ratio	-	-	0.059	-
HCM Control Delay (s)	-	-	10.4	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	37	253	31	62	166
Future Vol, veh/h	12	37	253	31	62	166
Conflicting Peds, #/hr	0	0	0	2	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	140	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	14	42	288	35	70	189

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	637	308	0	0	325	0
Stage 1	308	-	-	-	-	-
Stage 2	329	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	445	737	-	-	1246	-
Stage 1	750	-	-	-	-	-
Stage 2	734	-	-	-	-	-
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	419	736	-	-	1244	-
Mov Cap-2 Maneuver	419	-	-	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	734	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	2.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	419	736	1244	-
HCM Lane V/C Ratio	-	-	0.033	0.057	0.057	-
HCM Control Delay (s)	-	-	13.9	10.2	8.1	-
HCM Lane LOS	-	-	B	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	0.2	-

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	117	55	256	164	13
Future Vol, veh/h	18	117	55	256	164	13
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	131	62	288	184	15
Number of Lanes	0	1	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	10	9.8	11.5
HCM LOS	A	A	B

Lane	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	13%	0%	0%	100%	0%
Vol Thru, %	87%	100%	0%	0%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	135	55	256	164	13
LT Vol	18	0	0	164	0
Through Vol	117	55	0	0	0
RT Vol	0	0	256	0	13
Lane Flow Rate	152	62	288	184	15
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.226	0.091	0.368	0.316	0.02
Departure Headway (Hd)	5.362	5.313	4.608	6.179	4.97
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	666	672	777	579	713
Service Time	3.425	3.061	2.356	3.96	2.751
HCM Lane V/C Ratio	0.228	0.092	0.371	0.318	0.021
HCM Control Delay	10	8.6	10	11.8	7.9
HCM Lane LOS	A	A	A	B	A
HCM 95th-tile Q	0.9	0.3	1.7	1.3	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	0	269	2	2	4	290	968	2	0	1175	74
Future Volume (veh/h)	53	0	269	2	2	4	290	968	2	0	1175	74
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		0.98	1.00		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	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	54	0	181	2	2	1	296	988	2	0	1199	72
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	241	0	210	5	5	3	231	1332	3	2	1023	870
Arrive On Green	0.14	0.00	0.14	0.01	0.01	0.01	0.13	0.72	0.72	0.00	0.55	0.55
Sat Flow, veh/h	1774	0	1547	706	706	353	1774	1858	4	1774	1863	1583
Grp Volume(v), veh/h	54	0	181	5	0	0	296	0	990	0	1199	72
Grp Sat Flow(s),veh/h/ln	1774	0	1547	1765	0	0	1774	0	1862	1774	1863	1583
Q Serve(g_s), s	2.9	0.0	12.3	0.3	0.0	0.0	14.0	0.0	34.5	0.0	59.0	2.3
Cycle Q Clear(g_c), s	2.9	0.0	12.3	0.3	0.0	0.0	14.0	0.0	34.5	0.0	59.0	2.3
Prop In Lane	1.00		1.00	0.40		0.20	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	0	210	14	0	0	231	0	1335	2	1023	870
V/C Ratio(X)	0.22	0.00	0.86	0.37	0.00	0.00	1.28	0.00	0.74	0.00	1.17	0.08
Avail Cap(c_a), veh/h	363	0	317	99	0	0	231	0	1335	66	1023	870
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	0.0	45.4	53.0	0.0	0.0	46.7	0.0	9.2	0.0	24.2	11.4
Incr Delay (d2), s/veh	0.2	0.0	9.7	11.7	0.0	0.0	155.0	0.0	2.0	0.0	87.9	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	1.4	0.0	5.8	0.2	0.0	0.0	16.8	0.0	18.1	0.0	55.1	1.0
LnGrp Delay(d),s/veh	41.5	0.0	55.2	64.7	0.0	0.0	201.7	0.0	11.2	0.0	112.1	11.4
LnGrp LOS	D		E	E			F		B		F	B
Approach Vol, veh/h		235			5			1286			1271	
Approach Delay, s/veh		52.0			64.7			55.0			106.4	
Approach LOS		D			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	82.5		18.6	18.0	64.5		6.3
Change Period (Y+Rc), s	4.0	5.5		4.0	4.0	5.5		5.5
Max Green Setting (Gmax), s	6.0	69.0		22.0	14.0	59.0		6.0
Max Q Clear Time (g_c+I1), s	10.0	36.5		14.3	16.0	61.0		2.3
Green Ext Time (p_c), s	0.0	2.2		0.3	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	78.1
HCM 2010 LOS	E

HCM 2010 TWSC
20: Old Redwood Hwy & E Railroad Ave 04/22/2019

Intersection	
Int Delay, s/veh	17.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	18	36	16	18	27	58	735	36	40	381	30
Future Vol, veh/h	59	18	36	16	18	27	58	735	36	40	381	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	20	39	17	20	29	63	799	39	43	414	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1486	1482	431	1492	1479	820	447	0	0	839	0	0
Stage 1	517	517	-	946	946	-	-	-	-	-	-	-
Stage 2	969	965	-	546	533	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	103	125	624	102	126	375	1113	-	-	796	-	-
Stage 1	541	534	-	314	340	-	-	-	-	-	-	-
Stage 2	305	333	-	522	525	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	76	111	624	76	112	375	1113	-	-	795	-	-
Mov Cap-2 Maneuver	76	111	-	76	112	-	-	-	-	-	-	-
Stage 1	510	505	-	296	320	-	-	-	-	-	-	-
Stage 2	249	314	-	445	497	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	182.8	53.1	0.6	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1113	-	-	113	138	795	-	-
HCM Lane V/C Ratio	0.057	-	-	1.087	0.48	0.055	-	-
HCM Control Delay (s)	8.4	-	-	182.8	53.1	9.8	-	-
HCM Lane LOS	A	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	7.4	2.2	0.2	-	-

HCM 2010 TWSC
21: E Railroad Ave & Bodway Pkwy 04/22/2019

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	71	88	0	0	0
Future Vol, veh/h	0	71	88	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	0	81	100	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	100	0	-	0	181	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	81	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1499	-	-	-	811	958
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1499	-	-	-	811	958
Mov Cap-2 Maneuver	-	-	-	-	811	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	945	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1499	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 2010 TWSC
22: Petaluma Hill Rd & E Railroad Ave 04/22/2019

Intersection												
Int Delay, s/veh	65.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	54	3	15	0	2	11	23	1204	2	6	1383	63
Future Vol, veh/h	54	3	15	0	2	11	23	1204	2	6	1383	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	3	16	0	2	11	24	1254	2	6	1441	66

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2763	2757	1441	2799	2822	1255	1507	0	0	1256	0	0
Stage 1	1453	1453	-	1303	1303	-	-	-	-	-	-	-
Stage 2	1310	1304	-	1496	1519	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 13	20	163	12	18	209	444	-	-	554	-	-
Stage 1	162	195	-	197	231	-	-	-	-	-	-	-
Stage 2	196	230	-	153	181	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 11	19	163	9	17	209	444	-	-	554	-	-
Mov Cap-2 Maneuver	~ 11	19	-	9	17	-	-	-	-	-	-	-
Stage 1	153	193	-	186	219	-	-	-	-	-	-	-
Stage 2	174	218	-	135	179	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 2499.9	62.4	0.3	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	444	-	-	14	76	554	-	-
HCM Lane V/C Ratio	0.054	-	-	5.357	0.178	0.011	-	-
HCM Control Delay (s)	13.6	-	-	$ 2499.9	62.4	11.6	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	10.3	0.6	0	-	-

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

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd 04/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	197	19	10	149	572	36	603	23	743	538	36
Future Volume (veh/h)	22	197	19	10	149	572	36	603	23	743	538	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	1	0	0	2	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
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	1976	1937	1976	1976	1937	1976	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	23	207	17	11	157	500	38	635	22	782	566	34
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	430	33	34	125	382	8	392	7	658	669	36
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.21	0.21	0.21	0.37	0.37	0.37
Sat Flow, veh/h	72	1413	110	12	410	1255	105	1755	61	1774	1739	104
Grp Volume(v), veh/h	247	0	0	668	0	0	695	0	0	782	0	600
Grp Sat Flow(s),veh/h/ln	1595	0	0	1677	0	0	1921	0	0	1774	0	1844
Q Serve(g_s), s	0.0	0.0	0.0	15.4	0.0	0.0	25.5	0.0	0.0	44.5	0.0	36.4
Cycle Q Clear(g_c), s	12.4	0.0	0.0	36.5	0.0	0.0	25.5	0.0	0.0	44.5	0.0	36.4
Prop In Lane	0.09		0.07	0.02		0.75	0.05		0.03	1.00		0.06
Lane Grp Cap(c), veh/h	518	0	0	540	0	0	410	0	0	658	0	684
V/C Ratio(X)	0.48	0.00	0.00	1.24	0.00	0.00	1.69	0.00	0.00	1.19	0.00	0.88
Avail Cap(c_a), veh/h	518	0	0	540	0	0	408	0	0	658	0	684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.4	0.0	0.0	42.7	0.0	0.0	47.3	0.0	0.0	37.8	0.0	35.4
Incr Delay (d2), s/veh	0.3	0.0	0.0	121.4	0.0	0.0	322.4	0.0	0.0	99.6	0.0	12.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.5
%ile BackOfQ(50%),veh/ln	6.6	0.0	0.0	36.1	0.0	0.0	51.3	0.0	0.0	39.9	0.0	21.3
LnGrp Delay(d),s/veh	33.6	0.0	0.0	164.2	0.0	0.0	374.8	0.0	0.0	137.3	0.0	47.9
LnGrp LOS	C			F			F			F		D
Approach Vol, veh/h		247			668			695			1382	
Approach Delay, s/veh		33.6			164.2			374.8			98.5	
Approach LOS		C			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		30.0		41.0		49.0		41.0
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		25.5		36.5		44.5		36.5
Max Q Clear Time (g_c+I1), s		27.5		14.4		46.5		38.5
Green Ext Time (p_c), s		0.0		0.5		0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay	172.0	
HCM 2010 LOS	F	

HCM 2010 Signalized Intersection Summary
24: N McDowell Blvd & Old Redwood Hwy

04/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	892	643	97	843	7	800	48	215	14	86	322
Future Volume (veh/h)	115	892	643	97	843	7	800	48	215	14	86	322
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	128	991	0	108	937	5	838	0	117	16	96	210
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	1.00	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	1283	979	134	1303	7	908	0	398	280	294	247
Arrive On Green	0.15	0.73	0.00	0.08	0.36	0.36	0.26	0.00	0.26	0.16	0.16	0.16
Sat Flow, veh/h	1774	3539	1583	1774	3609	19	3548	0	1556	1774	1863	1565
Grp Volume(v), veh/h	128	991	0	108	459	483	838	0	117	16	96	210
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1859	1774	0	1556	1774	1863	1565
Q Serve(g_s), s	9.3	22.7	0.0	7.8	29.1	29.1	29.9	0.0	7.9	1.0	5.9	17.0
Cycle Q Clear(g_c), s	9.3	22.7	0.0	7.8	29.1	29.1	29.9	0.0	7.9	1.0	5.9	17.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	136	1283	979	134	639	671	908	0	398	280	294	247
V/C Ratio(X)	0.94	0.77	0.00	0.81	0.72	0.72	0.92	0.00	0.29	0.06	0.33	0.85
Avail Cap(c_a), veh/h	136	1283	979	136	639	671	1010	0	443	396	416	349
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.77	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	14.5	0.0	59.2	35.8	35.8	47.1	0.0	38.9	46.5	48.6	53.3
Incr Delay (d2), s/veh	49.1	3.5	0.0	26.7	6.8	6.5	12.1	0.0	0.2	0.0	0.2	9.7
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	6.4	11.4	0.0	4.8	15.4	16.1	16.2	0.0	3.4	0.5	3.1	8.0
LnGrp Delay(d),s/veh	103.8	18.0	0.0	85.8	42.7	42.4	59.2	0.0	39.1	46.6	48.9	62.9
LnGrp LOS	F	B		F	D	D	E		D	D	D	E
Approach Vol, veh/h		1119			1050			955			322	
Approach Delay, s/veh		27.8			47.0			56.7			57.9	
Approach LOS		C			D			E			E	

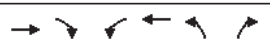
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.8	52.2		25.3	14.0	52.0		38.7
Change Period (Y+Rc), s	4.0	5.1		* 4.8	4.0	* 5.1		5.4
Max Green Setting (Gmax), s	9.0	34.7		* 29	10.0	* 35		37.0
Max Q Clear Time (g_c+I1), s	11.8	24.7		19.0	11.3	31.1		31.9
Green Ext Time (p_c), s	0.0	6.3		0.5	0.0	2.5		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	44.5
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
25: US 101 NB Off-ramp & Old Redwood Hwy

04/22/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1339	1130	0	1907	401	345
Future Volume (veh/h)	1339	1130	0	1907	401	345
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	1424	0	0	2029	427	254
Adj No. of Lanes	2	1	0	2	2	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2453	1098	0	2453	537	435
Arrive On Green	0.69	0.00	0.00	0.92	0.16	0.16
Sat Flow, veh/h	3632	1583	0	3725	3442	2787
Grp Volume(v), veh/h	1424	0	0	2029	427	254
Grp Sat Flow(s),veh/h/ln	1770	1583	0	1770	1721	1393
Q Serve(g_s), s	13.4	0.0	0.0	12.2	7.8	5.5
Cycle Q Clear(g_c), s	13.4	0.0	0.0	12.2	7.8	5.5
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2453	1098	0	2453	537	435
V/C Ratio(X)	0.58	0.00	0.00	0.83	0.80	0.58
Avail Cap(c_a), veh/h	2453	1098	0	2453	577	467
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.37	1.00	1.00
Uniform Delay (d), s/veh	5.1	0.0	0.0	1.3	26.4	25.5
Incr Delay (d2), s/veh	1.0	0.0	0.0	1.3	7.1	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	0.0	5.2	4.2	2.2
LnGrp Delay(d),s/veh	6.1	0.0	0.0	2.5	33.6	27.1
LnGrp LOS	A			A	C	C
Approach Vol, veh/h	1424			2029	681	
Approach Delay, s/veh	6.1			2.5	31.2	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		50.2				50.2		14.8
Change Period (Y+Rc), s		5.1				5.1		4.7
Max Green Setting (Gmax), s		44.3				44.3		10.9
Max Q Clear Time (g_c+I1), s		15.4				14.2		9.8
Green Ext Time (p_c), s		17.1				25.0		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	8.5
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1: Snyder Ln & Rohnert Park Expwy

06/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	275	581	430	75	538	227	384	382	69	240	444	218
Future Volume (veh/h)	275	581	430	75	538	227	384	382	69	240	444	218
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		0.98	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	316	668	477	86	618	253	441	439	77	276	510	241
Adj No. of Lanes	2	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	453	1044	700	207	991	645	510	855	559	453	797	555
Arrive On Green	0.13	0.29	0.29	0.12	0.28	0.28	0.15	0.24	0.24	0.13	0.23	0.23
Sat Flow, veh/h	3442	3539	1580	1774	3539	1558	3442	3539	1547	3442	3539	1539
Grp Volume(v), veh/h	316	668	477	86	618	253	441	439	77	276	510	241
Grp Sat Flow(s),veh/h/ln	1721	1770	1580	1774	1770	1558	1721	1770	1547	1721	1770	1539
Q Serve(g_s), s	8.0	14.9	21.9	4.1	13.9	10.4	11.4	9.8	3.1	6.9	11.9	10.9
Cycle Q Clear(g_c), s	8.0	14.9	21.9	4.1	13.9	10.4	11.4	9.8	3.1	6.9	11.9	10.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	453	1044	700	207	991	645	510	855	559	453	797	555
V/C Ratio(X)	0.70	0.64	0.68	0.42	0.62	0.39	0.87	0.51	0.14	0.61	0.64	0.43
Avail Cap(c_a), veh/h	567	1760	1020	292	1756	982	567	1756	953	567	1756	972
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.8	27.9	20.2	37.3	28.6	18.8	37.9	29.9	19.7	37.3	32.0	22.3
Incr Delay (d2), s/veh	1.7	0.2	0.4	0.5	0.2	0.1	11.3	0.2	0.0	0.5	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	7.4	9.6	2.0	6.8	4.5	6.2	4.8	1.3	3.3	5.8	4.6
LnGrp Delay(d),s/veh	39.5	28.2	20.7	37.8	28.8	19.0	49.2	30.1	19.8	37.8	32.3	22.5
LnGrp LOS	D	C	C	D	C	B	D	C	B	D	C	C
Approach Vol, veh/h		1461			957			957			1027	
Approach Delay, s/veh		28.2			27.0			38.1			31.5	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	27.8	14.6	32.7	17.5	26.3	16.0	31.3
Change Period (Y+Rc), s	4.0	5.8	4.0	* 5.8	4.0	5.8	4.0	* 5.8
Max Green Setting (Gmax), s	15.0	45.2	15.0	* 45	15.0	45.2	15.0	* 45
Max Q Clear Time (g_c+I1), s	8.9	11.8	6.1	23.9	13.4	13.9	10.0	15.9
Green Ext Time (p_c), s	0.1	1.0	0.0	1.7	0.1	1.2	0.1	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	30.8
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
2: US 101 SB Ramps & Gravenstein Hwy

06/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1015	470	195	997	0	0	0	0	864	4	376
Future Volume (veh/h)	0	1015	470	195	997	0	0	0	0	864	4	376
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	8	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1937	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	1068	339	205	1049	0				909	4	295
Adj No. of Lanes	0	2	1	1	2	0				2	1	0
Peak Hour Factor	0.98	0.95	0.95	0.95	0.95	0.98				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1335	611	350	2179	0				1041	62	427
Arrive On Green	0.00	0.38	0.38	0.27	0.82	0.00				0.30	0.30	0.30
Sat Flow, veh/h	0	3632	1621	1774	3632	0				3442	21	1565
Grp Volume(v), veh/h	0	1068	339	205	1049	0				909	0	299
Grp Sat Flow(s),veh/h/ln	0	1770	1621	1774	1770	0				1721	0	1587
Q Serve(g_s), s	0.0	29.6	18.1	11.0	9.6	0.0				27.6	0.0	17.9
Cycle Q Clear(g_c), s	0.0	29.6	18.1	11.0	9.6	0.0				27.6	0.0	17.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	1335	611	350	2179	0				1041	0	488
V/C Ratio(X)	0.00	0.80	0.55	0.59	0.48	0.00				0.87	0.00	0.61
Avail Cap(c_a), veh/h	0	1335	611	355	2188	0				1111	0	512
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.96	0.96	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	30.5	27.0	36.6	4.7	0.0				36.4	0.0	33.7
Incr Delay (d2), s/veh	0.0	5.1	3.6	1.5	0.7	0.0				7.0	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	5.0
%ile BackOfQ(50%),veh/ln	0.0	15.3	8.7	5.5	4.9	0.0				14.1	0.0	9.8
LnGrp Delay(d),s/veh	0.0	35.6	30.6	38.2	5.5	0.0				43.4	0.0	40.0
LnGrp LOS		D	C	D	A					D		D
Approach Vol, veh/h		1407			1254						1208	
Approach Delay, s/veh		34.4			10.8						42.6	
Approach LOS		C			B						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	36.5	46.0		37.5		72.5		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	19.5	41.5		35.5		65.5		
Max Q Clear Time (g_c+I1), s	13.6	31.6		29.6		11.6		
Green Ext Time (p_c), s	0.1	5.8		3.4		8.1		

Intersection Summary	
HCM 2010 Ctrl Delay	29.3
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
3: US 101 NB Off-ramp & Gravenstein Hwy

06/25/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1874	0	0	773	409	374
Future Volume (veh/h)	1874	0	0	773	409	374
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863
Adj Flow Rate, veh/h	1932	0	0	797	422	343
Adj No. of Lanes	2	0	0	3	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	2338	0	0	3360	886	408
Arrive On Green	0.88	0.00	0.00	0.66	0.26	0.26
Sat Flow, veh/h	3725	0	0	5421	3442	1583
Grp Volume(v), veh/h	1932	0	0	797	422	343
Grp Sat Flow(s),veh/h/ln	1770	0	0	1695	1721	1583
Q Serve(g_s), s	26.6	0.0	0.0	6.9	11.4	22.6
Cycle Q Clear(g_c), s	26.6	0.0	0.0	6.9	11.4	22.6
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2338	0	0	3360	886	408
V/C Ratio(X)	0.83	0.00	0.00	0.24	0.48	0.84
Avail Cap(c_a), veh/h	2338	0	0	3360	1048	482
HCM Platoon Ratio	1.33	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.48	0.00	0.00	0.69	1.00	1.00
Uniform Delay (d), s/veh	3.9	0.0	0.0	7.5	34.6	38.7
Incr Delay (d2), s/veh	1.7	0.0	0.0	0.1	0.4	11.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.6	0.0	0.0	3.3	5.4	11.2
LnGrp Delay(d),s/veh	5.6	0.0	0.0	7.6	35.0	49.8
LnGrp LOS	A			A	C	D
Approach Vol, veh/h	1932			797	765	
Approach Delay, s/veh	5.6			7.6	41.6	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		77.2				77.2		32.8
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		67.5				67.5		33.5
Max Q Clear Time (g_c+I1), s		28.6				8.9		24.6
Green Ext Time (p_c), s		32.3				12.0		3.7

Intersection Summary	
HCM 2010 Ctrl Delay	13.9
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Old Redwood Hwy & Gravenstein Hwy/Gravenstein Way

06/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	983	168	1098	79	62	80	363	759	35	35	228	274
Future Volume (veh/h)	983	168	1098	79	62	80	363	759	35	35	228	274
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	3	0	0	0	0	0	0	3	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	1013	173	0	81	64	66	374	782	29	36	235	282
Adj No. of Lanes	2	1	1	1	1	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1088	589	501	207	95	98	412	835	25	273	287	745
Arrive On Green	0.32	0.32	0.00	0.12	0.12	0.12	0.23	0.23	0.23	0.15	0.15	0.15
Sat Flow, veh/h	3442	1863	1583	1774	820	845	1774	3562	132	1774	1863	1583
Grp Volume(v), veh/h	1013	173	0	81	0	130	374	409	402	36	235	282
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	0	1665	1774	1863	1831	1774	1863	1583
Q Serve(g_s), s	27.6	6.8	0.0	4.1	0.0	7.2	19.8	20.9	20.9	1.7	11.8	11.1
Cycle Q Clear(g_c), s	27.6	6.8	0.0	4.1	0.0	7.2	19.8	20.9	20.9	1.7	11.8	11.1
Prop In Lane	1.00		1.00	1.00		0.51	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	1088	589	501	207	0	194	412	433	427	273	287	745
V/C Ratio(X)	0.93	0.29	0.00	0.39	0.00	0.67	0.91	0.94	0.94	0.13	0.82	0.38
Avail Cap(c_a), veh/h	1103	597	508	440	0	413	413	433	426	459	482	909
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	24.9	0.0	39.6	0.0	41.0	36.2	36.7	36.7	35.4	39.7	16.5
Incr Delay (d2), s/veh	13.2	0.1	0.0	0.4	0.0	1.5	22.8	29.3	29.1	0.1	2.2	0.1
Initial Q Delay(d3),s/veh	0.8	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.5	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.4	3.5	0.0	2.0	0.0	3.4	12.3	14.6	14.3	0.8	6.3	7.5
LnGrp Delay(d),s/veh	46.3	25.0	0.0	40.1	0.0	42.5	59.0	67.6	67.3	35.4	41.9	16.6
LnGrp LOS	D	C		D		D	E	E	E	D	D	B
Approach Vol, veh/h		1186			211			1185			553	
Approach Delay, s/veh		43.2			41.6			64.8			28.6	
Approach LOS		D			D			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		35.0		19.4		15.3		27.0
Change Period (Y+Rc), s		4.5		4.5		4.0		4.5
Max Green Setting (Gmax), s		31.0		25.0		24.0		22.5
Max Q Clear Time (g_c+I1), s		29.6		13.8		9.2		22.9
Green Ext Time (p_c), s		0.9		1.1		0.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	48.7
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave 06/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	366	48	35	273	481	18	458	15	641	515	115
Future Volume (veh/h)	162	366	48	35	273	481	18	458	15	641	515	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	4	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.95	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	167	377	47	36	281	450	19	472	14	661	531	114
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	657	539	45	535	461	29	747	22	403	789	653
Arrive On Green	0.08	0.35	0.35	0.03	0.30	0.30	0.02	0.21	0.21	0.23	0.42	0.42
Sat Flow, veh/h	1774	1863	1529	1774	1770	1523	1774	3504	104	1774	1863	1540
Grp Volume(v), veh/h	167	377	47	36	281	450	19	238	248	661	531	114
Grp Sat Flow(s),veh/h/ln	1774	1863	1529	1774	1770	1523	1774	1770	1838	1774	1863	1540
Q Serve(g_s), s	7.5	16.3	2.0	2.0	13.1	29.0	1.1	12.1	12.2	22.5	22.8	4.6
Cycle Q Clear(g_c), s	7.5	16.3	2.0	2.0	13.1	29.0	1.1	12.1	12.2	22.5	22.8	4.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	134	657	539	45	535	461	29	377	392	403	789	653
V/C Ratio(X)	1.24	0.57	0.09	0.80	0.52	0.98	0.65	0.63	0.63	1.64	0.67	0.17
Avail Cap(c_a), veh/h	134	657	539	81	535	461	97	571	593	403	922	763
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	26.0	21.4	48.1	28.7	34.2	48.5	35.4	35.5	38.3	23.0	17.8
Incr Delay (d2), s/veh	157.7	0.8	0.0	11.3	0.5	35.7	8.7	0.6	0.6	299.9	1.0	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	21.4	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	8.5	0.9	1.1	6.5	16.7	0.6	6.0	6.3	48.5	11.9	1.9
LnGrp Delay(d),s/veh	203.5	26.8	21.4	59.4	29.1	69.9	57.2	36.1	36.1	359.5	24.0	17.8
LnGrp LOS	F	C	C	E	C	E	E	D	D	F	C	B
Approach Vol, veh/h		591			767			505			1306	
Approach Delay, s/veh		76.3			54.5			36.9			193.3	
Approach LOS		E			D			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	39.5	6.1	46.5	12.0	34.5	27.0	25.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	4.5	33.0	5.4	49.1	7.5	30.0	22.5	32.0
Max Q Clear Time (g_c+I1), s	4.0	18.3	3.1	24.8	9.5	31.0	24.5	14.2
Green Ext Time (p_c), s	0.0	0.7	0.0	1.1	0.0	0.0	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	113.0
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave 07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	366	48	0	308	481	18	458	15	641	515	115
Future Volume (veh/h)	162	366	48	0	308	481	18	458	15	641	515	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	4	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	167	377	47	0	318	450	19	472	14	661	531	114
Adj No. of Lanes	1	1	1	0	1	1	1	2	0	2	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	183	787	647	0	504	746	30	768	23	730	611	131
Arrive On Green	0.10	0.42	0.42	0.00	0.27	0.27	0.02	0.22	0.22	0.21	0.41	0.41
Sat Flow, veh/h	1774	1863	1532	0	1863	1518	1774	3506	104	3442	1473	316
Grp Volume(v), veh/h	167	377	47	0	318	450	19	238	248	661	0	645
Grp Sat Flow(s),veh/h/ln	1774	1863	1532	0	1863	1518	1774	1770	1841	1721	0	1789
Q Serve(g_s), s	8.6	13.5	1.7	0.0	13.8	20.1	1.0	11.1	11.2	17.2	0.0	30.4
Cycle Q Clear(g_c), s	8.6	13.5	1.7	0.0	13.8	20.1	1.0	11.1	11.2	17.2	0.0	30.4
Prop In Lane	1.00		1.00	0.00		1.00	1.00		0.06	1.00		0.18
Lane Grp Cap(c), veh/h	183	787	647	0	504	746	30	388	403	730	0	742
V/C Ratio(X)	0.91	0.48	0.07	0.00	0.63	0.60	0.64	0.61	0.62	0.90	0.00	0.87
Avail Cap(c_a), veh/h	183	892	734	0	608	829	79	616	641	768	0	942
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.9	19.3	15.9	0.0	29.6	17.5	45.0	32.5	32.5	35.6	0.0	24.7
Incr Delay (d2), s/veh	41.8	0.2	0.0	0.0	0.7	0.6	8.2	0.6	0.6	13.3	0.0	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	7.0	0.7	0.0	7.2	8.5	0.5	5.5	5.7	10.0	0.0	16.2
LnGrp Delay(d),s/veh	82.7	19.5	15.9	0.0	30.3	18.1	53.3	33.1	33.1	51.2	0.0	30.8
LnGrp LOS	F	B	B		C	B	D	C	C	D		C
Approach Vol, veh/h		591			768			505			1306	
Approach Delay, s/veh		37.0			23.2			33.8			41.1	
Approach LOS		D			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		43.4	6.0	42.5	14.0	29.4	23.9	24.6
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s		44.0	4.1	48.4	9.5	30.0	20.5	32.0
Max Q Clear Time (g_c+I1), s		15.5	3.0	32.4	10.6	22.1	19.2	13.2
Green Ext Time (p_c), s		0.8	0.0	1.4	0.0	0.8	0.1	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	34.9
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	53.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	1133	203	92	781	1	186	0	101	11	0	17
Future Vol, veh/h	1	1133	203	92	781	1	186	0	101	11	0	17
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1180	211	96	814	1	194	0	105	11	0	18
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	235.2	73.3	33.8	13.5
HCM LOS	F	F	D	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	65%	100%	0%	0%	100%	0%	0%	39%
Vol Thru, %	0%	0%	100%	65%	0%	100%	100%	0%
Vol Right, %	35%	0%	0%	35%	0%	0%	0%	61%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	287	1	755	581	92	521	261	28
LT Vol	186	1	0	0	92	0	0	11
Through Vol	0	0	755	378	0	521	260	0
RT Vol	101	0	0	203	0	0	1	17
Lane Flow Rate	299	1	787	605	96	542	272	29
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.728	0.002	1.627	1.209	0.213	1.131	0.567	0.076
Departure Headway (Hd)	9.504	8.266	7.748	7.495	8.496	7.979	7.976	10.003
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	383	436	480	490	426	461	455	360
Service Time	7.204	5.966	5.448	5.195	6.196	5.679	5.676	7.703
HCM Lane V/C Ratio	0.781	0.002	1.64	1.235	0.225	1.176	0.598	0.081
HCM Control Delay	33.8	11	311.4	136.5	13.5	110.4	20.6	13.5
HCM Lane LOS	D	B	F	F	B	F	C	B
HCM 95th-tile Q	5.6	0	43	22.3	0.8	18	3.4	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1133	203	92	781	1	186	0	101	11	0	17
Future Volume (veh/h)	1	1133	203	92	781	1	186	0	101	11	0	17
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1976	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	1	1180	211	96	814	1	194	0	105	11	0	18
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	1746	310	245	2121	3	336	11	132	207	35	254
Arrive On Green	0.58	0.58	0.58	0.58	0.58	0.58	0.26	0.00	0.26	0.26	0.00	0.26
Sat Flow, veh/h	665	2985	530	387	3627	4	899	44	511	466	135	984
Grp Volume(v), veh/h	1	696	695	96	397	418	299	0	0	29	0	0
Grp Sat Flow(s),veh/h/ln	665	1770	1745	387	1770	1862	1454	0	0	1586	0	0
Q Serve(g_s), s	0.0	15.5	15.8	13.1	6.9	6.9	10.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.9	15.5	15.8	28.9	6.9	6.9	11.0	0.0	0.0	0.8	0.0	0.0
Prop In Lane	1.00		0.30	1.00		0.00	0.65		0.35	0.38		0.62
Lane Grp Cap(c), veh/h	435	1035	1021	245	1035	1089	479	0	0	496	0	0
V/C Ratio(X)	0.00	0.67	0.68	0.39	0.38	0.38	0.62	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	746	1864	1838	426	1864	1961	871	0	0	889	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.2	8.2	8.2	18.2	6.4	6.4	19.8	0.0	0.0	16.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.3	0.4	0.1	0.1	0.5	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	7.4	7.6	1.4	3.3	3.5	4.5	0.0	0.0	0.3	0.0	0.0
LnGrp Delay(d),s/veh	8.2	8.4	8.5	18.6	6.5	6.5	20.3	0.0	0.0	16.1	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	C			B		
Approach Vol, veh/h		1392			911			299			29	
Approach Delay, s/veh		8.5			7.7			20.3			16.1	
Approach LOS		A			A			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		38.1		19.3		38.1		19.3
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		60.5		30.5		60.5		30.5
Max Q Clear Time (g_c+I1), s		17.8		2.8		30.9		13.0
Green Ext Time (p_c), s		4.0		0.0		2.7		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	9.7
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave 06/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	499	315	374	646	58	232	145	375	48	191	97
Future Volume (veh/h)	134	499	315	374	646	58	232	145	375	48	191	97
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	2	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.95	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	141	525	300	394	680	50	244	153	369	51	201	65
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	591	337	301	1196	87	169	484	401	169	348	113
Arrive On Green	0.10	0.28	0.28	0.17	0.36	0.36	0.10	0.26	0.26	0.10	0.26	0.26
Sat Flow, veh/h	1774	2147	1223	1774	3329	245	1774	1863	1543	1774	1342	434
Grp Volume(v), veh/h	141	433	392	394	361	369	244	153	369	51	0	266
Grp Sat Flow(s),veh/h/ln	1774	1770	1601	1774	1770	1804	1774	1863	1543	1774	0	1776
Q Serve(g_s), s	7.3	22.1	22.2	16.0	15.5	15.5	9.0	6.2	21.9	2.5	0.0	12.3
Cycle Q Clear(g_c), s	7.3	22.1	22.2	16.0	15.5	15.5	9.0	6.2	21.9	2.5	0.0	12.3
Prop In Lane	1.00		0.76	1.00		0.14	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	172	487	441	301	635	647	169	484	401	169	0	461
V/C Ratio(X)	0.82	0.89	0.89	1.31	0.57	0.57	1.44	0.32	0.92	0.30	0.00	0.58
Avail Cap(c_a), veh/h	282	549	496	301	635	647	169	534	442	169	0	509
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.7	32.7	32.8	39.1	24.4	24.4	42.6	28.1	33.9	39.7	0.0	30.4
Incr Delay (d2), s/veh	3.6	14.0	15.5	160.3	0.8	0.8	228.0	0.1	22.3	0.4	0.0	0.6
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	8.8	12.7	11.7	21.2	7.8	8.0	15.1	3.2	11.8	1.2	0.0	6.1
LnGrp Delay(d),s/veh	45.4	46.7	48.3	199.4	25.2	25.2	270.6	28.3	56.2	40.0	0.0	31.0
LnGrp LOS	D	D	D	F	C	C	F	C	E	D		C
Approach Vol, veh/h		966			1124			766			317	
Approach Delay, s/veh		47.2			86.3			118.9			32.5	
Approach LOS		D			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.0	30.8	13.0	29.4	13.1	38.7	13.0	29.4
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	26.0	29.2	9.0	27.0	15.0	31.2	9.0	27.0
Max Q Clear Time (g_c+I1), s	18.0	24.2	11.0	14.3	9.3	17.5	4.5	23.9
Green Ext Time (p_c), s	0.0	1.1	0.0	0.4	0.0	1.4	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	76.9
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave 07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	499	315	374	646	58	232	145	375	48	191	97
Future Volume (veh/h)	134	499	315	374	646	58	232	145	375	48	191	97
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	2	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.95	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	141	525	300	394	680	50	244	153	369	51	201	65
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	569	324	419	1384	101	347	471	390	367	316	102
Arrive On Green	0.09	0.27	0.27	0.24	0.42	0.42	0.10	0.25	0.25	0.08	0.24	0.24
Sat Flow, veh/h	1774	2146	1223	1774	3330	245	1774	1863	1543	1774	1341	434
Grp Volume(v), veh/h	141	433	392	394	361	369	244	153	369	51	0	266
Grp Sat Flow(s),veh/h/ln	1774	1770	1600	1774	1770	1805	1774	1863	1543	1774	0	1775
Q Serve(g_s), s	8.8	26.9	27.0	24.7	17.0	17.0	11.0	7.6	26.6	2.3	0.0	15.3
Cycle Q Clear(g_c), s	8.8	26.9	27.0	24.7	17.0	17.0	11.0	7.6	26.6	2.3	0.0	15.3
Prop In Lane	1.00		0.76	1.00		0.14	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	168	469	424	419	735	750	347	471	390	367	0	418
V/C Ratio(X)	0.84	0.92	0.93	0.94	0.49	0.49	0.70	0.32	0.95	0.14	0.00	0.64
Avail Cap(c_a), veh/h	267	519	469	470	738	753	347	477	395	367	0	424
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.4	40.5	40.5	42.4	24.4	24.4	31.7	34.4	41.5	27.5	0.0	38.9
Incr Delay (d2), s/veh	6.7	20.1	22.2	24.6	0.2	0.2	5.4	0.1	31.1	0.1	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	15.7	14.5	14.9	8.4	8.6	2.4	3.9	14.7	1.1	0.0	7.7
LnGrp Delay(d),s/veh	57.1	60.6	62.7	67.0	24.6	24.6	37.1	34.6	72.6	27.6	0.0	41.3
LnGrp LOS	E	E	E	E	C	C	D	C	E	C		D
Approach Vol, veh/h		966			1124			766			317	
Approach Delay, s/veh		60.9			39.5			53.7			39.1	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.8	34.9	15.0	31.5	14.7	51.9	13.0	33.5
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	30.0	33.2	11.0	27.0	17.0	47.2	9.0	29.0
Max Q Clear Time (g_c+I1), s	26.7	29.0	13.0	17.3	10.8	19.0	4.3	28.6
Green Ext Time (p_c), s	0.1	1.0	0.0	0.4	0.0	1.5	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	49.4
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	499	315	374	646	58	232	145	375	48	191	97
Future Volume (veh/h)	134	499	315	374	646	58	232	145	375	48	191	97
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	2	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.94	1.00		0.98	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	141	525	300	394	680	50	244	153	369	51	201	65
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	360	806	520	449	1015	74	432	497	412	456	358	116
Arrive On Green	0.10	0.23	0.23	0.17	0.30	0.30	0.11	0.27	0.27	0.11	0.27	0.27
Sat Flow, veh/h	1774	3539	1528	1774	3327	244	1774	1863	1544	1774	1342	434
Grp Volume(v), veh/h	141	525	300	394	361	369	244	153	369	51	0	266
Grp Sat Flow(s),veh/h/ln	1774	1770	1528	1774	1770	1802	1774	1863	1544	1774	0	1776
Q Serve(g_s), s	4.8	11.1	13.4	13.7	14.8	14.8	8.2	5.4	19.0	1.5	0.0	10.7
Cycle Q Clear(g_c), s	4.8	11.1	13.4	13.7	14.8	14.8	8.2	5.4	19.0	1.5	0.0	10.7
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	360	806	520	449	539	549	432	497	412	456	0	474
V/C Ratio(X)	0.39	0.65	0.58	0.88	0.67	0.67	0.56	0.31	0.90	0.11	0.00	0.56
Avail Cap(c_a), veh/h	370	1337	750	449	797	812	433	609	505	456	0	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.6	29.0	22.7	19.8	25.2	25.2	19.6	24.2	29.2	16.8	0.0	26.2
Incr Delay (d2), s/veh	0.3	0.3	0.4	17.1	0.5	0.5	1.1	0.1	14.4	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	5.4	5.7	8.7	7.5	7.6	4.0	2.8	9.7	0.7	0.0	5.3
LnGrp Delay(d),s/veh	20.9	29.3	23.0	36.9	25.8	25.8	20.7	24.4	43.6	16.8	0.0	26.5
LnGrp LOS	C	C	C	D	C	C	C	C	D	B		C
Approach Vol, veh/h		966			1124			766			317	
Approach Delay, s/veh		26.1			29.7			32.5			25.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	23.6	13.0	27.0	12.6	30.0	13.0	27.0
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	4.0	31.2	9.0	27.0	9.0	37.2	9.0	27.0
Max Q Clear Time (g_c+I1), s	15.7	15.4	10.2	12.7	6.8	16.8	3.5	21.0
Green Ext Time (p_c), s	0.0	1.3	0.0	0.5	0.0	1.4	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	28.8
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

06/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	478	318	77	13	506	511	53	169	12	307	247	483
Future Volume (veh/h)	478	318	77	13	506	511	53	169	12	307	247	483
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	493	328	49	13	522	322	55	174	8	316	255	367
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	418	1502	800	50	768	646	167	482	22	351	454	749
Arrive On Green	0.24	0.42	0.42	0.03	0.22	0.22	0.09	0.14	0.14	0.20	0.24	0.24
Sat Flow, veh/h	1774	3539	1534	1774	3539	1533	1774	3443	157	1774	1863	1542
Grp Volume(v), veh/h	493	328	49	13	522	322	55	89	93	316	255	367
Grp Sat Flow(s),veh/h/ln	1774	1770	1534	1774	1770	1533	1774	1770	1831	1774	1863	1542
Q Serve(g_s), s	20.0	5.0	1.3	0.6	11.5	13.2	2.5	3.9	3.9	14.8	10.2	13.8
Cycle Q Clear(g_c), s	20.0	5.0	1.3	0.6	11.5	13.2	2.5	3.9	3.9	14.8	10.2	13.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	418	1502	800	50	768	646	167	248	256	351	454	749
V/C Ratio(X)	1.18	0.22	0.06	0.26	0.68	0.50	0.33	0.36	0.36	0.90	0.56	0.49
Avail Cap(c_a), veh/h	418	1587	837	313	1379	911	418	606	627	418	638	901
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	15.5	10.2	40.4	30.5	18.4	36.0	33.1	33.1	33.2	28.1	15.1
Incr Delay (d2), s/veh	103.4	0.0	0.0	1.0	0.4	0.2	0.4	0.3	0.3	18.1	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.7	2.4	0.6	0.3	5.6	5.6	1.2	1.9	2.0	9.0	5.3	5.9
LnGrp Delay(d),s/veh	135.8	15.5	10.2	41.5	30.9	18.6	36.4	33.4	33.4	51.4	28.5	15.3
LnGrp LOS	F	B	B	D	C	B	D	C	C	D	C	B
Approach Vol, veh/h		870			857			237			938	
Approach Delay, s/veh		83.4			26.5			34.1			31.1	
Approach LOS		F			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.4	41.0	12.0	25.6	24.0	23.3	20.8	16.8
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	5.0	38.1	20.0	29.1	20.0	33.1	20.0	29.1
Max Q Clear Time (g_c+I1), s	12.6	7.0	4.5	15.8	22.0	15.2	16.8	5.9
Green Ext Time (p_c), s	0.0	0.8	0.0	0.6	0.0	1.4	0.1	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	45.6
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	478	318	77	13	506	511	53	169	12	307	247	483
Future Volume (veh/h)	478	318	77	13	506	511	53	169	12	307	247	483
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	493	328	49	13	522	322	55	174	8	316	255	367
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	522	1750	900	49	805	526	157	622	28	384	380	780
Arrive On Green	0.29	0.49	0.49	0.03	0.23	0.23	0.09	0.18	0.18	0.11	0.20	0.20
Sat Flow, veh/h	1774	3539	1537	1774	3539	1534	1774	3443	157	3442	1863	1538
Grp Volume(v), veh/h	493	328	49	13	522	322	55	89	93	316	255	367
Grp Sat Flow(s),veh/h/ln	1774	1770	1537	1774	1770	1534	1774	1770	1831	1721	1863	1538
Q Serve(g_s), s	26.0	4.9	1.3	0.7	12.8	16.8	2.8	4.2	4.2	8.6	12.1	15.1
Cycle Q Clear(g_c), s	26.0	4.9	1.3	0.7	12.8	16.8	2.8	4.2	4.2	8.6	12.1	15.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	522	1750	900	49	805	526	157	319	331	384	380	780
V/C Ratio(X)	0.94	0.19	0.05	0.27	0.65	0.61	0.35	0.28	0.28	0.82	0.67	0.47
Avail Cap(c_a), veh/h	741	2447	1202	167	1301	741	204	536	555	503	623	980
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	13.5	8.6	45.6	33.5	26.5	41.1	33.9	33.9	41.6	35.2	15.8
Incr Delay (d2), s/veh	14.2	0.0	0.0	1.1	0.3	0.4	0.5	0.2	0.2	6.3	0.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.8	2.4	0.6	0.4	6.3	7.2	1.4	2.0	2.1	4.4	6.3	6.4
LnGrp Delay(d),s/veh	47.3	13.5	8.6	46.7	33.8	26.9	41.6	34.0	34.0	47.9	35.9	16.0
LnGrp LOS	D	B	A	D	C	C	D	C	C	D	D	B
Approach Vol, veh/h		870			857			237			938	
Approach Delay, s/veh		32.4			31.4			35.8			32.2	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	52.2	12.5	24.4	32.2	26.7	14.7	22.2
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	9.6	66.2	11.0	32.0	40.0	35.2	14.0	29.0
Max Q Clear Time (g_c+I1), s	2.7	6.9	4.8	17.1	28.0	18.8	10.6	6.2
Green Ext Time (p_c), s	0.0	0.8	0.0	0.6	0.2	1.3	0.1	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	32.3
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

06/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	164	539	115	302	608	18	185	53	210	77	50	288
Future Volume (veh/h)	164	539	115	302	608	18	185	53	210	77	50	288
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	173	567	98	318	640	18	195	56	157	81	53	183
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	778	134	355	1199	34	309	324	264	204	134	459
Arrive On Green	0.12	0.26	0.26	0.20	0.34	0.34	0.17	0.17	0.17	0.19	0.19	0.19
Sat Flow, veh/h	1774	3019	520	1774	3513	99	1774	1863	1514	1093	715	1470
Grp Volume(v), veh/h	173	332	333	318	322	336	195	56	157	134	0	183
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1774	1770	1843	1774	1863	1514	1808	0	1470
Q Serve(g_s), s	10.2	18.2	18.3	18.6	15.6	15.6	10.8	2.7	10.2	6.9	0.0	10.5
Cycle Q Clear(g_c), s	10.2	18.2	18.3	18.6	15.6	15.6	10.8	2.7	10.2	6.9	0.0	10.5
Prop In Lane	1.00		0.29	1.00		0.05	1.00		1.00	0.60		1.00
Lane Grp Cap(c), veh/h	207	456	456	355	604	629	309	324	264	338	0	459
V/C Ratio(X)	0.84	0.73	0.73	0.90	0.53	0.53	0.63	0.17	0.60	0.40	0.00	0.40
Avail Cap(c_a), veh/h	384	656	656	517	789	821	470	494	402	478	0	573
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.0	36.1	36.1	41.5	28.2	28.2	40.8	37.4	40.5	38.0	0.0	29.5
Incr Delay (d2), s/veh	8.6	4.8	4.9	13.4	1.6	1.5	4.5	0.5	4.5	1.6	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	9.4	9.6	10.4	7.9	8.2	5.7	1.4	4.6	3.6	0.0	4.4
LnGrp Delay(d),s/veh	54.6	40.8	41.0	54.9	29.8	29.7	45.3	37.9	45.0	39.6	0.0	30.7
LnGrp LOS	D	D	D	D	C	C	D	D	D	D		C
Approach Vol, veh/h		838			976			408			317	
Approach Delay, s/veh		43.7			37.9			44.2			34.4	
Approach LOS		D			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	25.3	32.3		25.1	16.4	41.2		23.7
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		5.2
Max Green Setting (Gmax), s	21.3	39.4		* 28	23.0	47.4		28.2
Max Q Clear Time (g_c+I1), s	20.6	20.3		12.5	12.2	17.6		12.8
Green Ext Time (p_c), s	0.7	7.0		2.5	0.3	8.3		2.7

Intersection Summary	
HCM 2010 Ctrl Delay	40.4
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	164	539	115	302	608	18	185	53	210	77	50	288
Future Volume (veh/h)	164	539	115	302	608	18	185	53	210	77	50	288
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	173	567	98	318	640	18	126	153	157	81	53	183
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	785	135	361	1210	34	342	360	615	146	95	379
Arrive On Green	0.12	0.26	0.26	0.20	0.34	0.34	0.19	0.19	0.19	0.13	0.13	0.13
Sat Flow, veh/h	1774	3019	520	1774	3513	99	1774	1863	1519	1093	715	1433
Grp Volume(v), veh/h	173	332	333	318	322	336	126	153	157	134	0	183
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1774	1770	1843	1774	1863	1519	1808	0	1433
Q Serve(g_s), s	8.7	15.7	15.8	16.0	13.4	13.4	5.7	6.6	6.4	6.4	0.0	10.0
Cycle Q Clear(g_c), s	8.7	15.7	15.8	16.0	13.4	13.4	5.7	6.6	6.4	6.4	0.0	10.0
Prop In Lane	1.00		0.29	1.00		0.05	1.00		1.00	0.60		1.00
Lane Grp Cap(c), veh/h	211	460	460	361	609	635	342	360	615	241	0	379
V/C Ratio(X)	0.82	0.72	0.72	0.88	0.53	0.53	0.37	0.43	0.26	0.56	0.00	0.48
Avail Cap(c_a), veh/h	387	615	615	541	770	801	541	569	785	252	0	388
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.5	30.9	31.0	35.5	24.1	24.1	32.2	32.5	18.6	37.2	0.0	29.4
Incr Delay (d2), s/veh	7.7	4.9	5.0	10.9	1.5	1.5	1.4	1.7	0.5	4.5	0.0	2.0
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	4.7	8.3	8.3	8.9	6.8	7.1	2.9	3.6	2.8	3.5	0.0	4.2
LnGrp Delay(d),s/veh	47.2	35.8	36.0	46.4	25.6	25.6	33.6	34.2	19.1	41.7	0.0	31.4
LnGrp LOS	D	D	D	D	C	C	C	C	B	D		C
Approach Vol, veh/h		838			976			436			317	
Approach Delay, s/veh		38.2			32.4			28.6			35.8	
Approach LOS		D			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.6	28.7		17.4	14.9	36.5		22.9
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		5.2
Max Green Setting (Gmax), s	8.6	31.9		* 13	20.0	39.9		28.0
Max Q Clear Time (g_c+I1), s	10.0	17.8		12.0	10.7	15.4		8.6
Green Ext Time (p_c), s	0.7	5.8		0.2	0.3	7.7		3.5

Intersection Summary	
HCM 2010 Ctrl Delay	34.1
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

06/25/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	437	356	255	809	986	577
Future Volume (veh/h)	437	356	255	809	986	577
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.98	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1976	1863	1863	1863	1863
Adj Flow Rate, veh/h	451	202	263	834	1016	527
Adj No. of Lanes	0	0	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	396	177	192	1110	846	704
Arrive On Green	0.32	0.32	0.11	0.60	0.45	0.45
Sat Flow, veh/h	1218	546	1774	1863	1863	1550
Grp Volume(v), veh/h	654	0	263	834	1016	527
Grp Sat Flow(s),veh/h/ln	1766	0	1774	1863	1863	1550
Q Serve(g_s), s	39.0	0.0	13.0	39.3	54.5	33.7
Cycle Q Clear(g_c), s	39.0	0.0	13.0	39.3	54.5	33.7
Prop In Lane	0.69	0.31	1.00			1.00
Lane Grp Cap(c), veh/h	574	0	192	1110	846	704
V/C Ratio(X)	1.14	0.00	1.37	0.75	1.20	0.75
Avail Cap(c_a), veh/h	574	0	192	1110	846	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	0.0	53.5	17.7	32.8	27.1
Incr Delay (d2), s/veh	82.2	0.0	195.3	2.6	101.7	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.1	0.0	16.8	21.0	51.9	15.1
LnGrp Delay(d),s/veh	122.7	0.0	248.8	20.3	134.5	31.0
LnGrp LOS	F		F	C	F	C
Approach Vol, veh/h	654			1097	1543	
Approach Delay, s/veh	122.7			75.1	99.1	
Approach LOS	F			E	F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		77.0		43.0	17.0	60.0		
Change Period (Y+Rc), s		5.5		4.0	4.0	5.5		
Max Green Setting (Gmax), s		71.5		39.0	13.0	54.5		
Max Q Clear Time (g_c+I1), s		41.3		41.0	15.0	56.5		
Green Ext Time (p_c), s		1.7		0.0	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	95.8
HCM 2010 LOS	F

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

07/30/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	437	356	255	809	986	577
Future Volume (veh/h)	437	356	255	809	986	577
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1937	1863	1863	1863	1863
Adj Flow Rate, veh/h	451	367	263	834	1016	595
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	406	845	520	1627	1012	1191
Arrive On Green	0.22	0.22	0.29	0.87	0.54	0.54
Sat Flow, veh/h	1845	1647	1774	1863	1863	1551
Grp Volume(v), veh/h	451	367	263	834	1016	595
Grp Sat Flow(s),veh/h/ln	1845	1647	1774	1863	1863	1551
Q Serve(g_s), s	33.0	0.0	18.5	15.4	81.5	22.1
Cycle Q Clear(g_c), s	33.0	0.0	18.5	15.4	81.5	22.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	406	845	520	1627	1012	1191
V/C Ratio(X)	1.11	0.43	0.51	0.51	1.00	0.50
Avail Cap(c_a), veh/h	406	845	520	1627	1012	1191
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	22.9	44.0	2.2	34.2	6.8
Incr Delay (d2), s/veh	78.3	0.1	0.3	1.2	29.2	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.6	15.2	9.1	8.2	49.8	18.7
LnGrp Delay(d),s/veh	136.8	23.0	44.3	3.3	63.5	8.3
LnGrp LOS	F	C	D	A	F	A
Approach Vol, veh/h	818			1097	1611	
Approach Delay, s/veh	85.7			13.2	43.1	
Approach LOS	F			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		136.5		37.0	49.5	87.0		
Change Period (Y+Rc), s		5.5		4.0	5.5	* 5.5		
Max Green Setting (Gmax), s		107.5		33.0	22.0	* 82		
Max Q Clear Time (g_c+I1), s		17.4		35.0	20.5	83.5		
Green Ext Time (p_c), s		1.7		0.0	0.1	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	43.7
HCM 2010 LOS	D

Notes

HCM 2010 AWSC
12: Camino Colegio & Mitchell Dr

06/25/2019

Intersection	
Intersection Delay, s/veh	14
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	222	174	56	285	59	148	23	45	38	31	2
Future Vol, veh/h	9	222	174	56	285	59	148	23	45	38	31	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	2	2	2	2	0	2	2	2	0	2	0
Mvmt Flow	10	241	189	61	310	64	161	25	49	41	34	2
Number of Lanes	1	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	3
HCM Control Delay	12.7	14.5	16.2	12
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	69%	100%	0%	0%	28%	0%	54%
Vol Thru, %	11%	0%	100%	30%	72%	71%	44%
Vol Right, %	21%	0%	0%	70%	0%	29%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	216	9	148	248	199	202	71
LT Vol	148	9	0	0	56	0	38
Through Vol	23	0	148	74	143	143	31
RT Vol	45	0	0	174	0	59	2
Lane Flow Rate	235	10	161	270	216	219	77
Geometry Grp	7	7	7	7	8	8	7
Degree of Util (X)	0.468	0.019	0.287	0.443	0.42	0.411	0.166
Departure Headway (Hd)	7.281	6.895	6.42	5.919	7.007	6.754	7.74
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	498	515	555	604	509	537	466
Service Time	4.981	4.692	4.216	3.715	4.807	4.454	5.447
HCM Lane V/C Ratio	0.472	0.019	0.29	0.447	0.424	0.408	0.165
HCM Control Delay	16.2	9.8	11.8	13.4	14.9	14.1	12
HCM Lane LOS	C	A	B	B	B	B	B
HCM 95th-tile Q	2.5	0.1	1.2	2.3	2.1	2	0.6

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	194	79	38	229	19	152	32	66	7	16	19
Future Vol, veh/h	32	194	79	38	229	19	152	32	66	7	16	19
Conflicting Peds, #/hr	0	0	7	0	0	5	0	0	4	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	34	209	85	41	246	20	163	34	71	8	17	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	271	0	0	301	0	0	544	680	158	537	712	141
Stage 1	-	-	-	-	-	-	327	327	-	343	343	-
Stage 2	-	-	-	-	-	-	217	353	-	194	369	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	1297	-	-	1264	-	-	424	374	862	429	358	884
Stage 1	-	-	-	-	-	-	662	649	-	648	638	-
Stage 2	-	-	-	-	-	-	768	632	-	792	622	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1291	-	-	1256	-	-	377	348	853	344	333	877
Mov Cap-2 Maneuver	-	-	-	-	-	-	377	348	-	344	333	-
Stage 1	-	-	-	-	-	-	640	628	-	628	614	-
Stage 2	-	-	-	-	-	-	703	608	-	666	601	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	1.1	25.5	13.6
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	437	1291	-	-	1256	-	-	466
HCM Lane V/C Ratio	0.615	0.027	-	-	0.033	-	-	0.097
HCM Control Delay (s)	25.5	7.9	-	-	8	-	-	13.6
HCM Lane LOS	D	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	4	0.1	-	-	0.1	-	-	0.3

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	194	79	38	229	19	152	32	66	7	16	19
Future Vol, veh/h	32	194	79	38	229	19	152	32	66	7	16	19
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	34	209	85	41	246	20	163	34	71	8	17	20
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.3	10.5	14.5	9.7
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	61%	100%	0%	0%	100%	0%	0%	17%
Vol Thru, %	13%	0%	100%	45%	0%	100%	80%	38%
Vol Right, %	26%	0%	0%	55%	0%	0%	20%	45%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	250	32	129	144	38	153	95	42
LT Vol	152	32	0	0	38	0	0	7
Through Vol	32	0	129	65	0	153	76	16
RT Vol	66	0	0	79	0	0	19	19
Lane Flow Rate	269	34	139	154	41	164	103	45
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.47	0.062	0.233	0.242	0.074	0.276	0.168	0.08
Departure Headway (Hd)	6.296	6.534	6.043	5.633	6.55	6.058	5.898	6.399
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	573	548	594	636	547	593	608	559
Service Time	4.034	4.275	3.783	3.373	4.291	3.799	3.639	4.154
HCM Lane V/C Ratio	0.469	0.062	0.234	0.242	0.075	0.277	0.169	0.081
HCM Control Delay	14.5	9.7	10.6	10.2	9.8	11.1	9.8	9.7
HCM Lane LOS	B	A	B	B	A	B	A	A
HCM 95th-tile Q	2.5	0.2	0.9	0.9	0.2	1.1	0.6	0.3

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	225	15	30	257	28	9	0	24	12	0	14
Future Vol, veh/h	22	225	15	30	257	28	9	0	24	12	0	14
Conflicting Peds, #/hr	0	0	0	0	0	8	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	92	92	91	91	92	92	92	91	92	91
Heavy Vehicles, %	1	2	2	2	2	2	2	2	2	1	2	1
Mvmt Flow	24	247	16	33	282	31	10	0	26	13	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	321	0	0	263	0	0	510	690	132	544	683	165
Stage 1	-	-	-	-	-	-	303	303	-	372	372	-
Stage 2	-	-	-	-	-	-	207	387	-	172	311	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.52	6.54	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.51	4.02	3.31
Pot Cap-1 Maneuver	1243	-	-	1298	-	-	446	367	893	424	370	854
Stage 1	-	-	-	-	-	-	681	662	-	623	617	-
Stage 2	-	-	-	-	-	-	776	608	-	816	657	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1234	-	-	1298	-	-	421	346	893	393	349	847
Mov Cap-2 Maneuver	-	-	-	-	-	-	421	346	-	393	349	-
Stage 1	-	-	-	-	-	-	668	649	-	606	593	-
Stage 2	-	-	-	-	-	-	738	584	-	777	645	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.8	10.6	11.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	684	1234	-	-	1298	-	-	552
HCM Lane V/C Ratio	0.052	0.02	-	-	0.025	-	-	0.052
HCM Control Delay (s)	10.6	8	-	-	7.8	0.1	-	11.9
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	127	130	190	166	139	121
Future Vol, veh/h	127	130	190	166	139	121
Conflicting Peds, #/hr	0	11	0	0	0	19
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	140	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	138	141	207	180	151	132

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	830	247	302	0	-	0
Stage 1	236	-	-	-	-	-
Stage 2	594	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	340	792	1259	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	552	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	273	770	1236	-	-	-
Mov Cap-2 Maneuver	273	-	-	-	-	-
Stage 1	657	-	-	-	-	-
Stage 2	542	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.7	4.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1236	-	273	770	-	-
HCM Lane V/C Ratio	0.167	-	0.506	0.184	-	-
HCM Control Delay (s)	8.5	-	30.9	10.7	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.6	-	2.7	0.7	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	4	0	0	37	0	307	18	0	258	8
Future Vol, veh/h	0	0	4	0	0	37	0	307	18	0	258	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	88	92	88	92	88	88	88	88	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	0	0	4	0	0	42	0	349	20	0	293	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	298	-	-	361	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	-	-	6.2	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	741	0	0	688	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	741	-	-	687	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	10.6	0	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	741	687	-	-
HCM Lane V/C Ratio	-	-	0.006	0.061	-	-
HCM Control Delay (s)	-	-	9.9	10.6	-	-
HCM Lane LOS	-	-	A	B	-	-
HCM 95th %tile Q(veh)	-	-	0	0.2	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	9	12	0	37	20	270	31	62	183	12
Future Vol, veh/h	6	0	9	12	0	37	20	270	31	62	183	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	50	-	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	88	92	88	92	88	88	88	88	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	7	0	10	14	0	42	22	307	35	70	208	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	745	743	215	731	732	327	221	0	0	344	0	0
Stage 1	355	355	-	371	371	-	-	-	-	-	-	-
Stage 2	390	388	-	360	361	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.52	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4.018	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	330	343	825	340	348	719	1348	-	-	1226	-	-
Stage 1	662	630	-	653	620	-	-	-	-	-	-	-
Stage 2	634	609	-	662	626	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	293	316	825	316	321	718	1348	-	-	1224	-	-
Mov Cap-2 Maneuver	293	316	-	316	321	-	-	-	-	-	-	-
Stage 1	649	594	-	639	606	-	-	-	-	-	-	-
Stage 2	585	596	-	617	590	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.8	11.9	0.5	2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1348	-	-	478	316	718	1224	-	-
HCM Lane V/C Ratio	0.016	-	-	0.034	0.043	0.059	0.058	-	-
HCM Control Delay (s)	7.7	0	-	12.8	16.9	10.3	8.1	-	-
HCM Lane LOS	A	A	-	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.2	0.2	-	-

HCM 2010 Roundabout
18: Bodway Pkwy & SOMO Ave/Valley House Dr

06/25/2019

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	217	442	30	228
Demand Flow Rate, veh/h	221	451	30	232
Vehicles Circulating, veh/h	208	61	410	155
Vehicles Exiting, veh/h	179	379	19	357
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	5
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	6.5	8.1	5.2	6.2
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	221	451	30	232
Cap Entry Lane, veh/h	918	1063	750	968
Entry HV Adj Factor	0.980	0.981	0.995	0.983
Flow Entry, veh/h	217	442	30	228
Cap Entry, veh/h	900	1043	746	950
V/C Ratio	0.241	0.424	0.040	0.240
Control Delay, s/veh	6.5	8.1	5.2	6.2
LOS	A	A	A	A
95th %tile Queue, veh	1	2	0	1

HCM 2010 Signalized Intersection Summary
19: Petaluma Hill Rd & Valley House Dr

06/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	0	306	2	2	4	354	968	2	0	1175	92
Future Volume (veh/h)	66	0	306	2	2	4	354	968	2	0	1175	92
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		0.98	1.00		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	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	67	0	219	2	2	1	361	988	2	0	1199	90
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	0	246	5	5	3	225	1296	3	2	995	846
Arrive On Green	0.16	0.00	0.16	0.01	0.01	0.01	0.13	0.70	0.70	0.00	0.53	0.53
Sat Flow, veh/h	1774	0	1548	706	706	353	1774	1858	4	1774	1863	1583
Grp Volume(v), veh/h	67	0	219	5	0	0	361	0	990	0	1199	90
Grp Sat Flow(s),veh/h/ln	1774	0	1548	1765	0	0	1774	0	1862	1774	1863	1583
Q Serve(g_s), s	3.6	0.0	15.3	0.3	0.0	0.0	14.0	0.0	38.0	0.0	59.0	3.1
Cycle Q Clear(g_c), s	3.6	0.0	15.3	0.3	0.0	0.0	14.0	0.0	38.0	0.0	59.0	3.1
Prop In Lane	1.00		1.00	0.40		0.20	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	282	0	246	14	0	0	225	0	1298	2	995	846
V/C Ratio(X)	0.24	0.00	0.89	0.37	0.00	0.00	1.61	0.00	0.76	0.00	1.20	0.11
Avail Cap(c_a), veh/h	353	0	308	96	0	0	225	0	1298	64	995	846
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	0.0	45.5	54.5	0.0	0.0	48.2	0.0	10.8	0.0	25.7	12.7
Incr Delay (d2), s/veh	0.2	0.0	19.6	11.8	0.0	0.0	292.1	0.0	2.5	0.0	101.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	7.9	0.2	0.0	0.0	25.1	0.0	20.1	0.0	58.3	1.4
LnGrp Delay(d),s/veh	40.7	0.0	65.1	66.3	0.0	0.0	340.3	0.0	13.3	0.0	127.5	12.7
LnGrp LOS	D		E	E			F		B		F	B
Approach Vol, veh/h		286			5			1351			1289	
Approach Delay, s/veh		59.4			66.3			100.6			119.5	
Approach LOS		E			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	82.5		21.6	18.0	64.5		6.4
Change Period (Y+Rc), s	4.0	5.5		4.0	4.0	5.5		5.5
Max Green Setting (Gmax), s	6.0	69.0		22.0	14.0	59.0		6.0
Max Q Clear Time (g_c+I1), s	10.0	40.0		17.3	16.0	61.0		2.3
Green Ext Time (p_c), s	0.0	2.2		0.3	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	104.8
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
19: Petaluma Hill Rd & Valley House Dr

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	0	306	2	2	4	354	968	2	0	1175	92
Future Volume (veh/h)	66	0	306	2	2	4	354	968	2	0	1175	92
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		0.97	1.00		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	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	67	0	219	2	2	1	361	988	2	0	1199	90
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	0	529	5	5	3	500	1558	3	1	969	909
Arrive On Green	0.05	0.00	0.05	0.01	0.01	0.01	0.28	0.84	0.84	0.00	0.52	0.52
Sat Flow, veh/h	1774	0	1541	706	706	353	1774	1858	4	1774	1863	1583
Grp Volume(v), veh/h	67	0	219	5	0	0	361	0	990	0	1199	90
Grp Sat Flow(s),veh/h/ln	1774	0	1541	1765	0	0	1774	0	1862	1774	1863	1583
Q Serve(g_s), s	5.6	0.0	0.0	0.4	0.0	0.0	27.5	0.0	27.5	0.0	78.0	3.9
Cycle Q Clear(g_c), s	5.6	0.0	0.0	0.4	0.0	0.0	27.5	0.0	27.5	0.0	78.0	3.9
Prop In Lane	1.00		1.00	0.40		0.20	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	96	0	529	13	0	0	500	0	1561	1	969	909
V/C Ratio(X)	0.70	0.00	0.41	0.38	0.00	0.00	0.72	0.00	0.63	0.00	1.24	0.10
Avail Cap(c_a), veh/h	260	0	672	71	0	0	500	0	1561	47	969	909
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.44	0.00	0.44	0.00	1.00	1.00
Uniform Delay (d), s/veh	69.8	0.0	38.4	74.1	0.0	0.0	48.6	0.0	4.2	0.0	36.0	14.4
Incr Delay (d2), s/veh	3.4	0.0	0.2	12.6	0.0	0.0	2.0	0.0	0.9	0.0	116.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	7.0	0.3	0.0	0.0	13.8	0.0	14.1	0.0	71.0	2.0
LnGrp Delay(d),s/veh	73.2	0.0	38.6	86.6	0.0	0.0	50.5	0.0	5.0	0.0	152.0	14.7
LnGrp LOS	E		D	F			D		A		F	B
Approach Vol, veh/h		286			5			1351			1289	
Approach Delay, s/veh		46.7			86.6			17.2			142.4	
Approach LOS		D			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	10.0	131.3		12.1	47.8	83.5		6.6
Change Period (Y+Rc), s	4.0	5.5		4.0	5.5	* 5.5		5.5
Max Green Setting (Gmax), s	6.0	99.0		22.0	25.0	* 78		6.0
Max Q Clear Time (g_c+I1), s	10.0	29.5		7.6	29.5	80.0		2.4
Green Ext Time (p_c), s	0.0	2.2		0.5	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	75.2
HCM 2010 LOS	E

Notes

HCM 2010 TWSC
20: Old Redwood Hwy & E Railroad Ave

06/25/2019

Intersection	
Int Delay, s/veh	28.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	34	36	16	29	27	58	735	36	40	381	30
Future Vol, veh/h	59	34	36	16	29	27	58	735	36	40	381	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	37	39	17	32	29	63	799	39	43	414	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1492	1482	431	1501	1479	820	447	0	0	839	0	0
Stage 1	517	517	-	946	946	-	-	-	-	-	-	-
Stage 2	975	965	-	555	533	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	102	125	624	100	126	375	1113	-	-	796	-	-
Stage 1	541	534	-	314	340	-	-	-	-	-	-	-
Stage 2	303	333	-	516	525	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	68	111	624	64	112	375	1113	-	-	795	-	-
Mov Cap-2 Maneuver	68	111	-	64	112	-	-	-	-	-	-	-
Stage 1	510	505	-	296	320	-	-	-	-	-	-	-
Stage 2	238	314	-	424	497	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	276.9	74.1	0.6	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1113	-	-	105	124	795	-	-
HCM Lane V/C Ratio	0.057	-	-	1.335	0.631	0.055	-	-
HCM Control Delay (s)	8.4	-	-	276.9	74.1	9.8	-	-
HCM Lane LOS	A	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	9.8	3.3	0.2	-	-

HCM 2010 Signalized Intersection Summary
20: Old Redwood Hwy & E Railroad Ave

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	34	36	16	29	27	58	735	36	40	381	30
Future Volume (veh/h)	59	34	36	16	29	27	58	735	36	40	381	30
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		0.98	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	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	64	37	39	17	32	29	63	799	39	43	414	33
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	99	74	106	145	104	98	947	46	77	896	71
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.06	0.54	0.54	0.04	0.53	0.53
Sat Flow, veh/h	550	588	439	182	862	618	1774	1759	86	1774	1703	136
Grp Volume(v), veh/h	140	0	0	78	0	0	63	0	838	43	0	447
Grp Sat Flow(s),veh/h/ln	1577	0	0	1662	0	0	1774	0	1845	1774	0	1839
Q Serve(g_s), s	2.2	0.0	0.0	0.0	0.0	0.0	2.0	0.0	22.2	1.4	0.0	8.8
Cycle Q Clear(g_c), s	4.5	0.0	0.0	2.3	0.0	0.0	2.0	0.0	22.2	1.4	0.0	8.8
Prop In Lane	0.46		0.28	0.22		0.37	1.00		0.05	1.00		0.07
Lane Grp Cap(c), veh/h	355	0	0	355	0	0	98	0	993	77	0	968
V/C Ratio(X)	0.39	0.00	0.00	0.22	0.00	0.00	0.65	0.00	0.84	0.56	0.00	0.46
Avail Cap(c_a), veh/h	756	0	0	778	0	0	273	0	1443	163	0	1323
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.8	0.0	0.0	21.0	0.0	0.0	26.8	0.0	11.3	27.1	0.0	8.6
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.3	0.0	0.0	6.9	0.0	3.2	6.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	1.1	0.0	0.0	1.2	0.0	12.1	0.8	0.0	4.4
LnGrp Delay(d),s/veh	22.5	0.0	0.0	21.3	0.0	0.0	33.7	0.0	14.5	33.4	0.0	8.9
LnGrp LOS	C			C			C		B	C		A
Approach Vol, veh/h		140			78			901			490	
Approach Delay, s/veh		22.5			21.3			15.8			11.1	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.0	36.1		14.7	7.7	35.4		14.7
Change Period (Y+Rc), s	4.5	5.0		5.0	4.5	5.0		5.0
Max Green Setting (Gmax), s	5.3	45.2		25.0	8.9	41.6		25.0
Max Q Clear Time (g_c+I1), s	13.4	24.2		6.5	4.0	10.8		4.3
Green Ext Time (p_c), s	0.0	6.9		0.7	0.0	2.9		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.2
HCM 2010 LOS	B

HCM 2010 TWSC
21: E Railroad Ave & Bodway Pkwy

06/25/2019

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	71	88	26	17	11
Future Vol, veh/h	16	71	88	26	17	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	18	81	100	30	19	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	130	0	-	0	232	115
Stage 1	-	-	-	-	115	-
Stage 2	-	-	-	-	117	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1462	-	-	-	758	940
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	911	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1462	-	-	-	748	940
Mov Cap-2 Maneuver	-	-	-	-	748	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	911	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1462	-	-	-	813
HCM Lane V/C Ratio	0.012	-	-	-	0.039
HCM Control Delay (s)	7.5	0	-	-	9.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 2010 TWSC
22: Petaluma Hill Rd & E Railroad Ave 06/25/2019

Intersection	
Int Delay, s/veh	123.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	54	3	32	0	2	11	49	1268	2	6	1420	63
Future Vol, veh/h	54	3	32	0	2	11	49	1268	2	6	1420	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	3	33	0	2	11	51	1321	2	6	1479	66

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2922	2916	1479	2966	2981	1322	1545	0	0	1323	0	0
Stage 1	1491	1491	-	1424	1424	-	-	-	-	-	-	-
Stage 2	1431	1425	-	1542	1557	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 10	15	154	9	14	191	429	-	-	522	-	-
Stage 1	154	187	-	168	202	-	-	-	-	-	-	-
Stage 2	167	201	-	144	174	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 7	13	154	5	12	191	429	-	-	522	-	-
Mov Cap-2 Maneuver	~ 7	13	-	5	12	-	-	-	-	-	-	-
Stage 1	136	185	-	148	178	-	-	-	-	-	-	-
Stage 2	137	177	-	110	172	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, $	4012.2	85	0.5	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	429	-	-	11	58	522	-	-
HCM Lane V/C Ratio	0.119	-	-	8.428	0.233	0.012	-	-
HCM Control Delay (s)	14.5	-	-	$ 4012.2	85	12	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-	12.9	0.8	0	-	-

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

HCM 2010 Signalized Intersection Summary
22: Petaluma Hill Rd & E Railroad Ave 07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	3	32	0	2	11	49	1268	2	6	1420	63
Future Volume (veh/h)	54	3	32	0	2	11	49	1268	2	6	1420	63
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		0.97	1.00		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	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	56	3	33	0	2	11	51	1321	2	6	1479	66
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	6	111	0	18	99	111	1385	2	130	1407	1196
Arrive On Green	0.07	0.07	0.07	0.00	0.07	0.07	0.06	0.74	0.74	0.07	0.76	0.76
Sat Flow, veh/h	1202	85	1544	0	249	1371	1774	1859	3	1774	1863	1583
Grp Volume(v), veh/h	59	0	33	0	0	13	51	0	1323	6	1479	66
Grp Sat Flow(s),veh/h/ln	1286	0	1544	0	0	1621	1774	0	1862	1774	1863	1583
Q Serve(g_s), s	5.4	0.0	2.8	0.0	0.0	1.0	3.8	0.0	85.4	0.4	103.0	1.5
Cycle Q Clear(g_c), s	6.4	0.0	2.8	0.0	0.0	1.0	3.8	0.0	85.4	0.4	103.0	1.5
Prop In Lane	0.95		1.00	0.00		0.85	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	0	111	0	0	117	111	0	1387	130	1407	1196
V/C Ratio(X)	0.41	0.00	0.30	0.00	0.00	0.11	0.46	0.00	0.95	0.05	1.05	0.06
Avail Cap(c_a), veh/h	270	0	249	0	0	261	130	0	1407	130	1407	1196
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.1	0.0	60.0	0.0	0.0	59.2	61.7	0.0	15.3	58.7	16.7	4.3
Incr Delay (d2), s/veh	1.9	0.0	1.5	0.0	0.0	0.4	2.9	0.0	14.4	0.1	38.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	1.2	0.0	0.0	0.5	1.9	0.0	48.9	0.2	67.1	0.6
LnGrp Delay(d),s/veh	64.0	0.0	61.5	0.0	0.0	59.6	64.6	0.0	29.7	58.9	55.4	4.3
LnGrp LOS	E		E			E	E		C	E	F	A
Approach Vol, veh/h		92			13			1374			1551	
Approach Delay, s/veh		63.1			59.6			31.0			53.2	
Approach LOS		E			E			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	106.6		14.8	13.6	108.0		14.8
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	103.0		22.0	10.0	103.0		22.0
Max Q Clear Time (g_c+I1), s	2.4	87.4		8.4	5.8	105.0		3.0
Green Ext Time (p_c), s	0.0	10.1		0.2	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	43.5
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd

06/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	197	19	10	149	612	36	653	23	768	567	36
Future Volume (veh/h)	22	197	19	10	149	612	36	653	23	768	567	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	1	0	0	2	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
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	1976	1937	1976	1976	1937	1976	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	23	207	17	11	157	542	38	687	22	808	597	34
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	430	33	34	117	388	8	393	6	658	670	34
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.21	0.21	0.21	0.37	0.37	0.37
Sat Flow, veh/h	72	1412	110	11	385	1277	98	1768	57	1774	1745	99
Grp Volume(v), veh/h	247	0	0	710	0	0	747	0	0	808	0	631
Grp Sat Flow(s),veh/h/ln	1594	0	0	1673	0	0	1922	0	0	1774	0	1845
Q Serve(g_s), s	0.0	0.0	0.0	15.4	0.0	0.0	25.5	0.0	0.0	44.5	0.0	39.3
Cycle Q Clear(g_c), s	12.4	0.0	0.0	36.5	0.0	0.0	25.5	0.0	0.0	44.5	0.0	39.3
Prop In Lane	0.09		0.07	0.02		0.76	0.05		0.03	1.00		0.05
Lane Grp Cap(c), veh/h	518	0	0	539	0	0	410	0	0	658	0	685
V/C Ratio(X)	0.48	0.00	0.00	1.32	0.00	0.00	1.82	0.00	0.00	1.23	0.00	0.92
Avail Cap(c_a), veh/h	518	0	0	539	0	0	409	0	0	658	0	684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.4	0.0	0.0	42.7	0.0	0.0	47.3	0.0	0.0	37.8	0.0	36.3
Incr Delay (d2), s/veh	0.3	0.0	0.0	155.3	0.0	0.0	378.6	0.0	0.0	115.8	0.0	17.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.8
%ile BackOfQ(50%),veh/ln	6.6	0.0	0.0	41.1	0.0	0.0	57.7	0.0	0.0	42.9	0.0	23.9
LnGrp Delay(d),s/veh	33.6	0.0	0.0	198.0	0.0	0.0	430.6	0.0	0.0	153.5	0.0	54.8
LnGrp LOS	C			F			F			F		D
Approach Vol, veh/h		247			710			747			1439	
Approach Delay, s/veh		33.6			198.0			430.6			110.2	
Approach LOS		C			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		30.0		41.0		49.0		41.0
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		25.5		36.5		44.5		36.5
Max Q Clear Time (g_c+I1), s		27.5		14.4		46.5		38.5
Green Ext Time (p_c), s		0.0		0.5		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	200.2
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd

07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	197	19	10	149	612	36	653	23	768	567	36
Future Volume (veh/h)	22	197	19	10	149	612	36	653	23	768	567	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	1	0	0	2	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	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	1976	1937	1976	1976	1937	1937	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	23	207	17	11	157	542	38	687	22	808	597	34
Adj No. of Lanes	0	1	0	0	1	1	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	334	26	44	398	1006	11	494	9	712	722	38
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.27	0.27	0.27	0.40	0.40	0.40
Sat Flow, veh/h	92	1559	122	52	1854	1611	98	1768	57	1774	1745	99
Grp Volume(v), veh/h	247	0	0	168	0	542	747	0	0	808	0	631
Grp Sat Flow(s),veh/h/ln	1773	0	0	1905	0	1611	1922	0	0	1774	0	1845
Q Serve(g_s), s	3.9	0.0	0.0	0.0	0.0	22.8	31.5	0.0	0.0	47.0	0.0	36.5
Cycle Q Clear(g_c), s	14.2	0.0	0.0	8.7	0.0	22.8	31.5	0.0	0.0	47.0	0.0	36.5
Prop In Lane	0.09		0.07	0.07		1.00	0.05		0.03	1.00		0.05
Lane Grp Cap(c), veh/h	414	0	0	442	0	1006	519	0	0	712	0	740
V/C Ratio(X)	0.60	0.00	0.00	0.38	0.00	0.54	1.44	0.00	0.00	1.14	0.00	0.85
Avail Cap(c_a), veh/h	455	0	0	487	0	1046	517	0	0	712	0	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.5	0.0	0.0	39.6	0.0	13.0	42.8	0.0	0.0	35.1	0.0	32.1
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.2	0.0	0.2	208.1	0.0	0.0	77.5	0.0	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.4
%ile BackOfQ(50%),veh/ln	7.4	0.0	0.0	4.7	0.0	17.5	47.7	0.0	0.0	38.3	0.0	20.9
LnGrp Delay(d),s/veh	42.6	0.0	0.0	39.8	0.0	13.3	255.7	0.0	0.0	112.6	0.0	41.5
LnGrp LOS	D			D		B	F			F		D
Approach Vol, veh/h		247			710			747			1439	
Approach Delay, s/veh		42.6			19.5			255.7			81.4	
Approach LOS		D			B			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		29.6		51.5		29.6
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		31.5		28.0		47.0		28.0
Max Q Clear Time (g_c+I1), s		33.5		16.2		49.0		24.8
Green Ext Time (p_c), s		0.0		0.4		0.0		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	105.8
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
24: N McDowell Blvd & Old Redwood Hwy

06/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	936	643	100	868	7	800	48	221	14	86	322
Future Volume (veh/h)	115	936	643	100	868	7	800	48	221	14	86	322
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	128	1040	0	111	964	5	838	0	124	16	96	210
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	1.00	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	1282	979	134	1303	7	908	0	398	280	294	247
Arrive On Green	0.15	0.72	0.00	0.08	0.36	0.36	0.26	0.00	0.26	0.16	0.16	0.16
Sat Flow, veh/h	1774	3539	1583	1774	3610	19	3548	0	1556	1774	1863	1565
Grp Volume(v), veh/h	128	1040	0	111	473	496	838	0	124	16	96	210
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1859	1774	0	1556	1774	1863	1565
Q Serve(g_s), s	9.3	25.5	0.0	8.0	30.3	30.3	29.9	0.0	8.4	1.0	5.9	17.0
Cycle Q Clear(g_c), s	9.3	25.5	0.0	8.0	30.3	30.3	29.9	0.0	8.4	1.0	5.9	17.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	136	1282	979	134	639	671	908	0	398	280	294	247
V/C Ratio(X)	0.94	0.81	0.00	0.83	0.74	0.74	0.92	0.00	0.31	0.06	0.33	0.85
Avail Cap(c_a), veh/h	136	1282	979	136	639	671	1010	0	443	396	416	349
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.74	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	14.9	0.0	59.2	36.2	36.2	47.1	0.0	39.1	46.5	48.6	53.3
Incr Delay (d2), s/veh	48.2	4.3	0.0	30.3	7.5	7.2	12.1	0.0	0.2	0.0	0.2	9.7
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	6.4	12.9	0.0	5.1	16.2	16.9	16.2	0.0	3.6	0.5	3.1	8.0
LnGrp Delay(d),s/veh	102.9	19.2	0.0	89.5	43.7	43.4	59.2	0.0	39.3	46.6	48.9	62.9
LnGrp LOS	F	B		F	D	D	E		D	D	D	E
Approach Vol, veh/h		1168			1080			962			322	
Approach Delay, s/veh		28.4			48.3			56.6			57.9	
Approach LOS		C			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.8	52.2		25.3	14.0	52.0		38.7
Change Period (Y+Rc), s	4.0	5.1		* 4.8	4.0	* 5.1		5.4
Max Green Setting (Gmax), s	10.0	34.7		* 29	10.0	* 35		37.0
Max Q Clear Time (g_c+I1), s	10.0	27.5		19.0	11.3	32.3		31.9
Green Ext Time (p_c), s	0.0	5.0		0.5	0.0	1.8		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	44.9
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
25: US 101 NB Off-ramp & Old Redwood Hwy

06/25/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1345	1130	0	1932	401	383
Future Volume (veh/h)	1345	1130	0	1932	401	383
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	1431	0	0	2055	427	294
Adj No. of Lanes	2	1	0	2	2	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2452	1097	0	2452	538	436
Arrive On Green	0.69	0.00	0.00	0.92	0.16	0.16
Sat Flow, veh/h	3632	1583	0	3725	3442	2787
Grp Volume(v), veh/h	1431	0	0	2055	427	294
Grp Sat Flow(s),veh/h/ln	1770	1583	0	1770	1721	1393
Q Serve(g_s), s	13.6	0.0	0.0	13.0	7.8	6.5
Cycle Q Clear(g_c), s	13.6	0.0	0.0	13.0	7.8	6.5
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2452	1097	0	2452	538	436
V/C Ratio(X)	0.58	0.00	0.00	0.84	0.79	0.67
Avail Cap(c_a), veh/h	2452	1097	0	2452	577	467
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.35	1.00	1.00
Uniform Delay (d), s/veh	5.1	0.0	0.0	1.3	26.4	25.9
Incr Delay (d2), s/veh	1.0	0.0	0.0	1.3	7.1	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	0.0	5.3	4.2	2.7
LnGrp Delay(d),s/veh	6.2	0.0	0.0	2.6	33.5	29.4
LnGrp LOS	A			A	C	C
Approach Vol, veh/h	1431			2055	721	
Approach Delay, s/veh	6.2			2.6	31.8	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		50.1				50.1		14.9
Change Period (Y+Rc), s		5.1				5.1		4.7
Max Green Setting (Gmax), s		44.3				44.3		10.9
Max Q Clear Time (g_c+I1), s		15.6				15.0		9.8
Green Ext Time (p_c), s		17.2				24.6		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	8.8
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1: Snyder Ln & Rohnert Park Expwy

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	275	581	447	75	538	227	393	390	69	240	459	218
Future Volume (veh/h)	275	581	447	75	538	227	393	390	69	240	459	218
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		0.98	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	316	668	497	86	618	253	452	448	77	276	528	241
Adj No. of Lanes	2	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	436	1070	715	201	1024	651	517	887	567	436	803	550
Arrive On Green	0.13	0.30	0.30	0.11	0.29	0.29	0.15	0.25	0.25	0.13	0.23	0.23
Sat Flow, veh/h	3442	3539	1580	1774	3539	1558	3442	3539	1548	3442	3539	1539
Grp Volume(v), veh/h	316	668	497	86	618	253	452	448	77	276	528	241
Grp Sat Flow(s),veh/h/ln	1721	1770	1580	1774	1770	1558	1721	1770	1548	1721	1770	1539
Q Serve(g_s), s	8.4	15.4	23.8	4.3	14.2	10.7	12.2	10.3	3.2	7.2	12.8	11.4
Cycle Q Clear(g_c), s	8.4	15.4	23.8	4.3	14.2	10.7	12.2	10.3	3.2	7.2	12.8	11.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	436	1070	715	201	1024	651	517	887	567	436	803	550
V/C Ratio(X)	0.72	0.62	0.69	0.43	0.60	0.39	0.87	0.51	0.14	0.63	0.66	0.44
Avail Cap(c_a), veh/h	545	1693	994	281	1689	944	545	1689	918	545	1689	935
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.8	28.4	20.7	39.1	29.0	19.3	39.4	30.5	20.2	39.3	33.3	23.4
Incr Delay (d2), s/veh	2.4	0.2	0.5	0.5	0.2	0.1	13.5	0.2	0.0	0.7	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	7.5	10.4	2.1	7.0	4.6	6.7	5.1	1.4	3.5	6.3	4.9
LnGrp Delay(d),s/veh	42.2	28.6	21.2	39.6	29.2	19.4	52.8	30.6	20.2	39.9	33.6	23.7
LnGrp LOS	D	C	C	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h		1481			957			977			1045	
Approach Delay, s/veh		29.0			27.6			40.1			33.0	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	29.5	14.8	34.4	18.2	27.3	16.0	33.2
Change Period (Y+Rc), s	4.0	5.8	4.0	* 5.8	4.0	5.8	4.0	* 5.8
Max Green Setting (Gmax), s	15.0	45.2	15.0	* 45	15.0	45.2	15.0	* 45
Max Q Clear Time (g_c+I1), s	9.2	12.3	6.3	25.8	14.2	14.8	10.4	16.2
Green Ext Time (p_c), s	0.1	1.0	0.0	1.7	0.0	1.3	0.1	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	32.1
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
2: US 101 SB Ramps & Gravenstein Hwy

06/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1025	470	195	1002	0	0	0	0	913	4	376
Future Volume (veh/h)	0	1025	470	195	1002	0	0	0	0	913	4	376
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	8	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1937	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	1079	339	205	1055	0				961	4	295
Adj No. of Lanes	0	2	1	1	2	0				2	1	0
Peak Hour Factor	0.98	0.95	0.95	0.95	0.95	0.98				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1335	611	336	2150	0				1069	62	439
Arrive On Green	0.00	0.38	0.38	0.25	0.81	0.00				0.31	0.31	0.31
Sat Flow, veh/h	0	3632	1621	1774	3632	0				3442	21	1565
Grp Volume(v), veh/h	0	1079	339	205	1055	0				961	0	299
Grp Sat Flow(s),veh/h/ln	0	1770	1621	1774	1770	0				1721	0	1587
Q Serve(g_s), s	0.0	30.0	18.1	11.2	10.3	0.0				29.4	0.0	17.6
Cycle Q Clear(g_c), s	0.0	30.0	18.1	11.2	10.3	0.0				29.4	0.0	17.6
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	1335	611	336	2150	0				1069	0	501
V/C Ratio(X)	0.00	0.81	0.55	0.61	0.49	0.00				0.90	0.00	0.60
Avail Cap(c_a), veh/h	0	1335	611	338	2155	0				1111	0	512
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.96	0.96	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	30.7	27.0	37.6	5.2	0.0				36.3	0.0	32.9
Incr Delay (d2), s/veh	0.0	5.3	3.6	2.2	0.8	0.0				9.3	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	4.5
%ile BackOfQ(50%),veh/ln	0.0	15.7	8.7	5.7	5.1	0.0				15.4	0.0	9.6
LnGrp Delay(d),s/veh	0.0	36.0	30.6	39.8	5.9	0.0				45.6	0.0	38.7
LnGrp LOS		D	C	D	A					D		D
Approach Vol, veh/h		1418			1260						1260	
Approach Delay, s/veh		34.7			11.4						43.9	
Approach LOS		C			B						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	25.5	46.0		38.5		71.5		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	19.5	41.5		35.5		65.5		
Max Q Clear Time (g_c+I1), s	13.2	32.0		31.4		12.3		
Green Ext Time (p_c), s	0.1	5.6		2.6		8.1		

Intersection Summary	
HCM 2010 Ctrl Delay	30.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
3: US 101 NB Off-ramp & Gravenstein Hwy

06/25/2019

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1933	0	0	778	409	374
Future Volume (veh/h)	1933	0	0	778	409	374
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863
Adj Flow Rate, veh/h	1993	0	0	802	422	343
Adj No. of Lanes	2	0	0	3	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	2338	0	0	3360	886	408
Arrive On Green	0.88	0.00	0.00	0.66	0.26	0.26
Sat Flow, veh/h	3725	0	0	5421	3442	1583
Grp Volume(v), veh/h	1993	0	0	802	422	343
Grp Sat Flow(s),veh/h/ln	1770	0	0	1695	1721	1583
Q Serve(g_s), s	29.9	0.0	0.0	7.0	11.4	22.6
Cycle Q Clear(g_c), s	29.9	0.0	0.0	7.0	11.4	22.6
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2338	0	0	3360	886	408
V/C Ratio(X)	0.85	0.00	0.00	0.24	0.48	0.84
Avail Cap(c_a), veh/h	2338	0	0	3360	1048	482
HCM Platoon Ratio	1.33	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.43	0.00	0.00	0.69	1.00	1.00
Uniform Delay (d), s/veh	4.1	0.0	0.0	7.5	34.6	38.7
Incr Delay (d2), s/veh	1.9	0.0	0.0	0.1	0.4	11.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	0.0	3.3	5.4	11.2
LnGrp Delay(d),s/veh	5.9	0.0	0.0	7.6	35.0	49.8
LnGrp LOS	A			A	C	D
Approach Vol, veh/h	1993			802	765	
Approach Delay, s/veh	5.9			7.6	41.6	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		77.2				77.2		32.8
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		67.5				67.5		33.5
Max Q Clear Time (g_c+I1), s		31.9				9.0		24.6
Green Ext Time (p_c), s		30.6				12.1		3.7

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
4: Old Redwood Hwy & Gravenstein Hwy/Gravenstein Way

06/25/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	983	168	1157	79	62	80	368	784	35	35	228	274
Future Volume (veh/h)	983	168	1157	79	62	80	368	784	35	35	228	274
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	3	0	0	0	0	0	0	3	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	1013	173	0	81	64	66	379	808	29	36	235	282
Adj No. of Lanes	2	1	1	1	1	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1088	591	502	207	95	98	412	845	20	273	287	746
Arrive On Green	0.32	0.32	0.00	0.12	0.12	0.12	0.23	0.23	0.23	0.15	0.15	0.15
Sat Flow, veh/h	3442	1863	1583	1774	820	845	1774	3567	128	1774	1863	1583
Grp Volume(v), veh/h	1013	173	0	81	0	130	379	422	415	36	235	282
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	0	1665	1774	1863	1832	1774	1863	1583
Q Serve(g_s), s	27.6	6.8	0.0	4.1	0.0	7.2	20.2	21.7	21.7	1.7	11.8	11.1
Cycle Q Clear(g_c), s	27.6	6.8	0.0	4.1	0.0	7.2	20.2	21.7	21.7	1.7	11.8	11.1
Prop In Lane	1.00		1.00	1.00		0.51	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	1088	591	502	207	0	194	412	432	428	273	287	746
V/C Ratio(X)	0.93	0.29	0.00	0.39	0.00	0.67	0.92	0.98	0.97	0.13	0.82	0.38
Avail Cap(c_a), veh/h	1103	597	508	440	0	413	413	433	426	459	482	909
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	24.9	0.0	39.7	0.0	41.0	36.4	37.2	37.1	35.4	39.7	16.5
Incr Delay (d2), s/veh	13.2	0.1	0.0	0.4	0.0	1.5	25.2	37.0	35.8	0.1	2.2	0.1
Initial Q Delay(d3),s/veh	0.8	0.0	0.0	0.0	0.0	0.0	0.0	3.8	3.1	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.4	3.5	0.0	2.0	0.0	3.4	12.8	16.3	15.8	0.8	6.3	7.5
LnGrp Delay(d),s/veh	46.3	25.0	0.0	40.1	0.0	42.5	61.6	78.0	75.9	35.5	41.9	16.6
LnGrp LOS	D	C		D		D	E	E	E	D	D	B
Approach Vol, veh/h		1186			211			1216			553	
Approach Delay, s/veh		43.2			41.6			72.2			28.6	
Approach LOS		D			D			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		35.0		19.4		15.3		27.0
Change Period (Y+Rc), s		4.5		4.5		4.0		4.5
Max Green Setting (Gmax), s		31.0		25.0		24.0		22.5
Max Q Clear Time (g_c+I1), s		29.6		13.8		9.2		23.7
Green Ext Time (p_c), s		0.9		1.1		0.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	51.7
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave 05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	373	48	35	277	511	18	458	15	700	515	115
Future Volume (veh/h)	162	373	48	35	277	511	18	458	15	700	515	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	4	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.95	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	167	385	47	36	286	481	19	472	14	722	531	114
Adj No. of Lanes	1	1	1	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	657	539	45	535	461	29	747	22	403	789	653
Arrive On Green	0.08	0.35	0.35	0.03	0.30	0.30	0.02	0.21	0.21	0.23	0.42	0.42
Sat Flow, veh/h	1774	1863	1529	1774	1770	1523	1774	3504	104	1774	1863	1540
Grp Volume(v), veh/h	167	385	47	36	286	481	19	238	248	722	531	114
Grp Sat Flow(s),veh/h/ln	1774	1863	1529	1774	1770	1523	1774	1770	1838	1774	1863	1540
Q Serve(g_s), s	7.5	16.7	2.0	2.0	13.3	30.0	1.1	12.1	12.2	22.5	22.8	4.6
Cycle Q Clear(g_c), s	7.5	16.7	2.0	2.0	13.3	30.0	1.1	12.1	12.2	22.5	22.8	4.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	134	657	539	45	535	461	29	377	392	403	789	653
V/C Ratio(X)	1.24	0.59	0.09	0.80	0.53	1.04	0.65	0.63	0.63	1.79	0.67	0.17
Avail Cap(c_a), veh/h	134	657	539	81	535	461	97	571	593	403	922	763
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	26.2	21.4	48.1	28.8	34.6	48.5	35.4	35.5	38.3	23.0	17.8
Incr Delay (d2), s/veh	157.7	0.9	0.0	11.3	0.5	53.9	8.7	0.6	0.6	366.9	1.0	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	19.5	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	8.7	0.9	1.1	6.6	19.4	0.6	6.0	6.3	56.0	11.9	1.9
LnGrp Delay(d),s/veh	203.5	27.1	21.4	59.4	29.3	88.5	57.2	36.1	36.1	424.7	24.0	17.8
LnGrp LOS	F	C	C	E	C	F	E	D	D	F	C	B
Approach Vol, veh/h		599			803			505			1367	
Approach Delay, s/veh		75.8			66.1			36.9			235.2	
Approach LOS		E			E			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	39.5	6.1	46.5	12.0	34.5	27.0	25.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	4.5	33.0	5.4	49.1	7.5	30.0	22.5	32.0
Max Q Clear Time (g_c+I1), s	4.0	18.7	3.1	24.8	9.5	32.0	24.5	14.2
Green Ext Time (p_c), s	0.0	0.8	0.0	1.1	0.0	0.0	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	134.0
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave 04/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	373	48	35	277	511	18	458	15	700	515	115
Future Volume (veh/h)	162	373	48	35	277	511	18	458	15	700	515	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	4	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	167	385	47	36	286	481	19	472	14	722	531	114
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	141	566	463	45	465	845	29	727	22	523	905	737
Arrive On Green	0.08	0.30	0.30	0.03	0.25	0.25	0.02	0.21	0.21	0.29	0.49	0.49
Sat Flow, veh/h	1774	1863	1525	1774	1863	1514	1774	3504	104	1774	1863	1517
Grp Volume(v), veh/h	167	385	47	36	286	481	19	238	248	722	531	114
Grp Sat Flow(s),veh/h/ln	1774	1863	1525	1774	1863	1514	1774	1770	1838	1774	1863	1517
Q Serve(g_s), s	8.5	19.4	2.4	2.2	14.5	22.7	1.1	13.2	13.2	31.5	21.9	4.5
Cycle Q Clear(g_c), s	8.5	19.4	2.4	2.2	14.5	22.7	1.1	13.2	13.2	31.5	21.9	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	141	566	463	45	465	845	29	367	381	523	905	737
V/C Ratio(X)	1.18	0.68	0.10	0.79	0.61	0.57	0.66	0.65	0.65	1.38	0.59	0.15
Avail Cap(c_a), veh/h	141	589	482	78	523	892	91	530	550	523	1011	824
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.2	32.6	26.7	51.8	35.5	16.2	52.3	38.8	38.8	37.7	19.7	15.3
Incr Delay (d2), s/veh	133.3	2.4	0.0	11.0	1.0	0.4	9.3	0.7	0.7	182.8	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	10.3	1.0	1.2	7.6	9.5	0.6	6.5	6.8	45.8	11.3	1.9
LnGrp Delay(d),s/veh	182.5	35.1	26.8	62.8	36.5	16.7	61.6	39.5	39.5	240.1	20.1	15.3
LnGrp LOS	F	D	C	E	D	B	E	D	D	F	C	B
Approach Vol, veh/h		599			803			505			1367	
Approach Delay, s/veh		75.5			25.8			40.3			135.9	
Approach LOS		E			C			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	36.9	6.2	56.4	13.0	31.2	36.0	26.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	4.7	33.8	5.5	58.0	8.5	30.0	31.5	32.0
Max Q Clear Time (g_c+I1), s	4.2	21.4	3.1	23.9	10.5	24.7	33.5	15.2
Green Ext Time (p_c), s	0.0	0.7	0.0	1.1	0.0	0.6	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	83.1
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave 07/30/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	366	48	35	273	481	18	458	15	641	515	115
Future Volume (veh/h)	162	366	48	35	273	481	18	458	15	641	515	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	4	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	167	377	47	36	281	450	19	472	14	661	531	114
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	576	472	45	466	812	29	744	22	486	875	712
Arrive On Green	0.08	0.31	0.31	0.03	0.25	0.25	0.02	0.21	0.21	0.27	0.47	0.47
Sat Flow, veh/h	1774	1863	1525	1774	1863	1514	1774	3504	104	1774	1863	1516
Grp Volume(v), veh/h	167	377	47	36	281	450	19	238	248	661	531	114
Grp Sat Flow(s),veh/h/ln	1774	1863	1525	1774	1863	1514	1774	1770	1838	1774	1863	1516
Q Serve(g_s), s	8.5	17.6	2.2	2.0	13.4	20.2	1.1	12.3	12.3	27.5	21.2	4.3
Cycle Q Clear(g_c), s	8.5	17.6	2.2	2.0	13.4	20.2	1.1	12.3	12.3	27.5	21.2	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	150	576	472	45	466	812	29	376	390	486	875	712
V/C Ratio(X)	1.11	0.65	0.10	0.80	0.60	0.55	0.65	0.63	0.64	1.36	0.61	0.16
Avail Cap(c_a), veh/h	150	629	515	81	557	886	97	564	586	486	1002	815
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	30.0	24.7	48.7	33.3	16.2	49.1	36.0	36.0	36.5	19.7	15.3
Incr Delay (d2), s/veh	106.7	1.5	0.0	11.3	0.5	0.3	8.8	0.7	0.6	175.2	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.4	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	9.3	0.9	1.1	6.9	8.4	0.6	6.1	6.3	41.0	11.0	1.8
LnGrp Delay(d),s/veh	152.6	31.6	24.8	59.9	33.8	16.5	57.9	36.7	36.7	233.1	20.2	15.3
LnGrp LOS	F	C	C	E	C	B	E	D	D	F	C	B
Approach Vol, veh/h		591			767			505			1306	
Approach Delay, s/veh		65.2			24.9			37.5			127.5	
Approach LOS		E			C			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	35.5	6.1	51.7	13.0	29.6	32.0	25.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	4.6	33.9	5.5	54.0	8.5	30.0	27.5	32.0
Max Q Clear Time (g_c+I1), s	4.0	19.6	3.1	23.2	10.5	22.2	29.5	14.3
Green Ext Time (p_c), s	0.0	0.7	0.0	1.1	0.0	0.7	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	76.7
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
5: Old Redwood Hwy & W. Sierra Ave/E Cotati Ave 05/31/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	373	48	35	277	511	18	458	15	700	515	115
Future Volume (veh/h)	162	373	48	35	277	511	18	458	15	700	515	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	4	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		0.96	1.00		0.97	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	167	385	47	36	286	481	19	472	14	722	531	114
Adj No. of Lanes	1	1	1	0	1	1	1	2	0	2	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	178	792	652	76	451	764	29	760	22	743	613	132
Arrive On Green	0.10	0.43	0.43	0.28	0.28	0.28	0.02	0.22	0.22	0.22	0.42	0.42
Sat Flow, veh/h	1774	1863	1533	122	1623	1519	1774	3506	104	3442	1473	316
Grp Volume(v), veh/h	167	385	47	322	0	481	19	238	248	722	0	645
Grp Sat Flow(s),veh/h/ln	1774	1863	1533	1745	0	1519	1774	1770	1841	1721	0	1789
Q Serve(g_s), s	8.9	14.2	1.7	5.7	0.0	22.3	1.0	11.5	11.6	19.8	0.0	31.3
Cycle Q Clear(g_c), s	8.9	14.2	1.7	15.0	0.0	22.3	1.0	11.5	11.6	19.8	0.0	31.3
Prop In Lane	1.00		1.00	0.11		1.00	1.00		0.06	1.00		0.18
Lane Grp Cap(c), veh/h	178	792	652	527	0	764	29	383	399	743	0	744
V/C Ratio(X)	0.94	0.49	0.07	0.61	0.00	0.63	0.64	0.62	0.62	0.97	0.00	0.87
Avail Cap(c_a), veh/h	178	863	710	591	0	822	77	596	620	743	0	912
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.4	19.8	16.2	30.0	0.0	17.8	46.4	33.7	33.7	37.2	0.0	25.3
Incr Delay (d2), s/veh	49.9	0.2	0.0	0.9	0.0	0.9	8.4	0.6	0.6	25.9	0.0	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	7.3	0.7	7.6	0.0	9.4	0.6	5.7	5.9	13.1	0.0	16.8
LnGrp Delay(d),s/veh	92.4	19.9	16.2	30.9	0.0	18.8	54.8	34.3	34.3	70.4	0.0	31.9
LnGrp LOS	F	B	B	C		B	D	C	C	E		C
Approach Vol, veh/h		599			803			505			1367	
Approach Delay, s/veh		39.8			23.6			35.0			52.2	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		44.9	6.1	44.0	14.0	30.9	25.0	25.1
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s		44.0	4.1	48.4	9.5	30.0	20.5	32.0
Max Q Clear Time (g_c+I1), s		16.2	3.0	33.3	10.9	24.3	21.8	13.6
Green Ext Time (p_c), s		0.8	0.0	1.4	0.0	0.7	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	40.3
HCM 2010 LOS	D

HCM 2010 AWSC
6: La Salle Ave & E Cotati Ave 05/16/2019

Intersection	
Intersection Delay, s/veh	178.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	1200	203	92	816	1	186	0	101	11	0	17
Future Vol, veh/h	1	1200	203	92	816	1	186	0	101	11	0	17
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1250	211	96	850	1	194	0	105	11	0	18
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	271.2	85.3	34.6	13.6
HCM LOS	F	F	D	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	65%	100%	0%	0%	100%	0%	0%	39%
Vol Thru, %	0%	0%	100%	66%	0%	100%	100%	0%
Vol Right, %	35%	0%	0%	34%	0%	0%	0%	61%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	287	1	800	603	92	544	273	28
LT Vol	186	1	0	0	92	0	0	11
Through Vol	0	0	800	400	0	544	272	0
RT Vol	101	0	0	203	0	0	1	17
Lane Flow Rate	299	1	833	628	96	567	284	29
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.73	0.002	1.731	1.263	0.214	1.184	0.594	0.076
Departure Headway (Hd)	9.703	8.322	7.804	7.56	8.523	8.007	8.004	10.11
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	377	433	475	484	424	459	455	356
Service Time	7.403	6.022	5.504	5.26	6.223	5.707	5.704	7.81
HCM Lane V/C Ratio	0.793	0.002	1.754	1.298	0.226	1.235	0.624	0.081
HCM Control Delay	34.6	11	357	157.7	13.5	129.4	21.7	13.6
HCM Lane LOS	D	B	F	F	B	F	C	B
HCM 95th-tile Q	5.6	0	48.3	24.8	0.8	20.2	3.8	0.2

HCM 2010 Signalized Intersection Summary
6: La Salle Ave & E Cotati Ave 05/31/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1200	203	92	816	1	186	0	101	11	0	17
Future Volume (veh/h)	1	1200	203	92	816	1	186	0	101	11	0	17
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1976	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	1	1250	211	96	850	1	194	0	105	11	0	18
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	425	1826	306	229	2196	3	323	9	129	197	32	247
Arrive On Green	0.61	0.61	0.61	0.61	0.61	0.61	0.25	0.00	0.25	0.25	0.00	0.25
Sat Flow, veh/h	644	3016	505	362	3627	4	909	34	511	472	125	977
Grp Volume(v), veh/h	1	729	732	96	415	436	299	0	0	29	0	0
Grp Sat Flow(s),veh/h/ln	644	1770	1751	362	1770	1862	1454	0	0	1574	0	0
Q Serve(g_s), s	0.1	17.6	18.1	15.6	7.7	7.7	11.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.7	17.6	18.1	33.7	7.7	7.7	12.3	0.0	0.0	0.8	0.0	0.0
Prop In Lane	1.00		0.29	1.00		0.00	0.65		0.35	0.38		0.62
Lane Grp Cap(c), veh/h	425	1072	1060	229	1072	1127	461	0	0	477	0	0
V/C Ratio(X)	0.00	0.68	0.69	0.42	0.39	0.39	0.65	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	646	1680	1662	354	1680	1767	785	0	0	802	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.5	8.4	8.5	19.9	6.5	6.5	22.3	0.0	0.0	18.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.3	0.5	0.1	0.1	0.6	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	8.6	8.6	1.6	3.7	3.9	5.0	0.0	0.0	0.4	0.0	0.0
LnGrp Delay(d),s/veh	8.5	8.7	8.8	20.4	6.6	6.6	22.8	0.0	0.0	18.1	0.0	0.0
LnGrp LOS	A	A	A	C	A	A	C			B		
Approach Vol, veh/h		1462			947			299			29	
Approach Delay, s/veh		8.8			8.0			22.8			18.1	
Approach LOS		A			A			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		43.1		20.6		43.1		20.6
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		60.5		30.5		60.5		30.5
Max Q Clear Time (g_c+I1), s		20.1		2.8		35.7		14.3
Green Ext Time (p_c), s		4.3		0.0		2.9		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	10.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave 05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	500	391	394	646	58	272	146	386	48	193	97
Future Volume (veh/h)	134	500	391	394	646	58	272	146	386	48	193	97
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	2	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.95	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	141	526	380	415	680	50	286	154	380	51	203	65
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	171	563	406	289	1224	89	163	490	406	163	354	113
Arrive On Green	0.10	0.29	0.29	0.16	0.37	0.37	0.09	0.26	0.26	0.09	0.26	0.26
Sat Flow, veh/h	1774	1936	1398	1774	3329	245	1774	1863	1544	1774	1345	431
Grp Volume(v), veh/h	141	481	425	415	361	369	286	154	380	51	0	268
Grp Sat Flow(s),veh/h/ln	1774	1770	1565	1774	1770	1804	1774	1863	1544	1774	0	1776
Q Serve(g_s), s	7.7	25.9	26.0	16.0	15.9	15.9	9.0	6.5	23.6	2.6	0.0	12.8
Cycle Q Clear(g_c), s	7.7	25.9	26.0	16.0	15.9	15.9	9.0	6.5	23.6	2.6	0.0	12.8
Prop In Lane	1.00		0.89	1.00		0.14	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	171	514	455	289	650	663	163	490	406	163	0	467
V/C Ratio(X)	0.82	0.93	0.94	1.43	0.56	0.56	1.76	0.31	0.94	0.31	0.00	0.57
Avail Cap(c_a), veh/h	271	527	466	289	650	663	163	513	425	163	0	489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.5	33.9	33.9	41.0	24.8	24.8	44.5	29.0	35.3	41.6	0.0	31.4
Incr Delay (d2), s/veh	5.3	23.4	25.6	214.0	0.6	0.6	364.5	0.1	27.1	0.4	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	16.0	14.5	25.0	8.0	8.1	20.9	3.4	13.1	1.3	0.0	6.4
LnGrp Delay(d),s/veh	48.8	57.3	59.5	255.0	25.4	25.4	409.1	29.2	62.4	42.1	0.0	32.2
LnGrp LOS	D	E	E	F	C	C	F	C	E	D		C
Approach Vol, veh/h		1047			1145			820			319	
Approach Delay, s/veh		57.1			108.6			177.1			33.8	
Approach LOS		E			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.0	33.4	13.0	30.7	13.5	40.9	13.0	30.7
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	26.0	29.2	9.0	27.0	15.0	31.2	9.0	27.0
Max Q Clear Time (g_c+I1), s	18.0	28.0	11.0	14.8	9.7	17.9	4.6	25.6
Green Ext Time (p_c), s	0.0	0.4	0.0	0.4	0.0	1.3	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	102.1
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave 04/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	500	391	394	646	58	272	146	386	48	193	97
Future Volume (veh/h)	134	500	391	394	646	58	272	146	386	48	193	97
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	2	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.95	1.00		0.97	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	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	141	526	380	415	680	50	286	154	380	51	203	65
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	514	371	419	1385	101	333	457	379	364	330	106
Arrive On Green	0.10	0.27	0.27	0.24	0.42	0.42	0.08	0.25	0.25	0.08	0.25	0.25
Sat Flow, veh/h	1774	1935	1397	1774	3330	245	1774	1863	1542	1774	1345	431
Grp Volume(v), veh/h	141	481	425	415	361	369	286	154	380	51	0	268
Grp Sat Flow(s),veh/h/ln	1774	1770	1562	1774	1770	1805	1774	1863	1542	1774	0	1776
Q Serve(g_s), s	8.6	29.2	29.2	25.7	16.5	16.5	9.0	7.5	27.0	2.2	0.0	14.8
Cycle Q Clear(g_c), s	8.6	29.2	29.2	25.7	16.5	16.5	9.0	7.5	27.0	2.2	0.0	14.8
Prop In Lane	1.00		0.89	1.00		0.14	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	169	470	415	419	736	751	333	457	379	364	0	436
V/C Ratio(X)	0.83	1.02	1.02	0.99	0.49	0.49	0.86	0.34	1.00	0.14	0.00	0.61
Avail Cap(c_a), veh/h	258	470	415	419	736	750	333	457	379	364	0	436
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.9	40.4	40.4	41.9	23.7	23.7	36.4	34.1	41.5	25.9	0.0	36.9
Incr Delay (d2), s/veh	8.0	47.8	50.7	41.1	0.2	0.2	18.6	0.2	47.2	0.1	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	20.5	18.4	17.3	8.2	8.4	6.0	3.9	16.4	1.1	0.0	7.5
LnGrp Delay(d),s/veh	56.9	88.2	91.1	82.9	23.9	23.9	55.0	34.3	88.7	26.0	0.0	38.8
LnGrp LOS	E	F	F	F	C	C	E	C	F	C		D
Approach Vol, veh/h		1047			1145			820			319	
Approach Delay, s/veh		85.1			45.3			66.8			36.7	
Approach LOS		F			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.0	34.1	13.0	31.9	14.5	50.6	13.0	31.9
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	26.0	29.2	9.0	27.0	16.0	40.2	9.0	27.0
Max Q Clear Time (g_c+I1), s	27.7	31.2	11.0	16.8	10.6	18.5	4.2	29.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.0	1.5	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	62.3
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
7: Camino Colegio & E Cotati Ave

05/31/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	500	391	394	646	58	272	146	386	48	193	97
Future Volume (veh/h)	134	500	391	394	646	58	272	146	386	48	193	97
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	2	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.95	1.00		0.98	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	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	141	526	380	415	680	50	286	154	380	51	203	65
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	368	926	561	441	1106	80	413	501	415	436	362	116
Arrive On Green	0.10	0.26	0.26	0.16	0.33	0.33	0.10	0.27	0.27	0.10	0.27	0.27
Sat Flow, veh/h	1774	3539	1532	1774	3328	244	1774	1863	1544	1774	1345	431
Grp Volume(v), veh/h	141	526	380	415	361	369	286	154	380	51	0	268
Grp Sat Flow(s),veh/h/ln	1774	1770	1532	1774	1770	1803	1774	1863	1544	1774	0	1776
Q Serve(g_s), s	4.9	11.5	18.7	14.0	15.2	15.3	9.0	5.9	21.2	1.7	0.0	11.5
Cycle Q Clear(g_c), s	4.9	11.5	18.7	14.0	15.2	15.3	9.0	5.9	21.2	1.7	0.0	11.5
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	368	926	561	441	588	599	413	501	415	436	0	477
V/C Ratio(X)	0.38	0.57	0.68	0.94	0.61	0.62	0.69	0.31	0.92	0.12	0.00	0.56
Avail Cap(c_a), veh/h	375	1242	698	441	741	755	414	566	469	436	0	540
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.4	28.5	24.0	21.6	25.0	25.0	23.8	25.9	31.6	18.4	0.0	28.0
Incr Delay (d2), s/veh	0.2	0.2	1.1	28.2	0.4	0.4	4.1	0.1	20.1	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	5.6	8.1	6.8	7.6	7.8	2.6	3.0	11.3	0.8	0.0	5.7
LnGrp Delay(d),s/veh	20.7	28.7	25.1	49.8	25.5	25.5	27.9	26.1	51.6	18.4	0.0	28.4
LnGrp LOS	C	C	C	D	C	C	C	C	D	B		C
Approach Vol, veh/h		1047			1145			820			319	
Approach Delay, s/veh		26.3			34.3			38.5			26.8	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	28.1	13.0	28.8	12.7	34.4	13.0	28.8
Change Period (Y+Rc), s	5.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	4.0	31.2	9.0	27.0	9.0	37.2	9.0	27.0
Max Q Clear Time (g_c+I1), s	16.0	20.7	11.0	13.5	6.9	17.3	3.7	23.2
Green Ext Time (p_c), s	0.0	1.3	0.0	0.4	0.0	1.4	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	32.1
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	489	319	77	13	506	517	53	177	12	317	261	503
Future Volume (veh/h)	489	319	77	13	506	517	53	177	12	317	261	503
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	504	329	49	13	522	328	55	182	8	327	269	388
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	413	1496	797	50	772	657	166	479	21	361	464	752
Arrive On Green	0.23	0.42	0.42	0.03	0.22	0.22	0.09	0.14	0.14	0.20	0.25	0.25
Sat Flow, veh/h	1774	3539	1534	1774	3539	1533	1774	3451	151	1774	1863	1543
Grp Volume(v), veh/h	504	329	49	13	522	328	55	93	97	327	269	388
Grp Sat Flow(s),veh/h/ln	1774	1770	1534	1774	1770	1533	1774	1770	1832	1774	1863	1543
Q Serve(g_s), s	20.0	5.1	1.4	0.6	11.6	13.5	2.5	4.1	4.1	15.5	10.9	15.0
Cycle Q Clear(g_c), s	20.0	5.1	1.4	0.6	11.6	13.5	2.5	4.1	4.1	15.5	10.9	15.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	413	1496	797	50	772	657	166	245	254	361	464	752
V/C Ratio(X)	1.22	0.22	0.06	0.26	0.68	0.50	0.33	0.38	0.38	0.90	0.58	0.52
Avail Cap(c_a), veh/h	413	1568	828	309	1362	913	413	599	620	413	630	890
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	15.8	10.4	40.9	30.8	18.3	36.5	33.7	33.7	33.4	28.4	15.4
Incr Delay (d2), s/veh	119.7	0.0	0.0	1.0	0.4	0.2	0.4	0.4	0.4	20.0	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.5	2.5	0.6	0.3	5.7	5.8	1.2	2.0	2.1	9.5	5.7	6.4
LnGrp Delay(d),s/veh	152.7	15.8	10.4	42.0	31.2	18.5	36.9	34.0	34.0	53.4	28.8	15.6
LnGrp LOS	F	B	B	D	C	B	D	C	C	D	C	B
Approach Vol, veh/h		882			863			245			984	
Approach Delay, s/veh		93.8			26.6			34.7			31.8	
Approach LOS		F			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.4	41.2	12.0	26.3	24.0	23.6	21.5	16.8
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	15.0	38.1	20.0	29.1	20.0	33.1	20.0	29.1
Max Q Clear Time (g_c+I1), s	12.0	7.1	4.5	17.0	22.0	15.5	17.5	6.1
Green Ext Time (p_c), s	0.0	0.8	0.0	0.7	0.0	1.4	0.1	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	48.9
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
8: Maurice Ave/Snyder Ln & E Cotati Ave

05/31/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	489	319	77	13	506	517	53	177	12	317	261	503
Future Volume (veh/h)	489	319	77	13	506	517	53	177	12	317	261	503
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	504	329	49	13	522	328	55	182	8	327	269	388
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	532	1771	905	48	806	530	153	624	27	392	389	796
Arrive On Green	0.30	0.50	0.50	0.03	0.23	0.23	0.09	0.18	0.18	0.11	0.21	0.21
Sat Flow, veh/h	1774	3539	1537	1774	3539	1534	1774	3451	151	3442	1863	1539
Grp Volume(v), veh/h	504	329	49	13	522	328	55	93	97	327	269	388
Grp Sat Flow(s),veh/h/ln	1774	1770	1537	1774	1770	1534	1774	1770	1832	1721	1863	1539
Q Serve(g_s), s	27.8	5.1	1.4	0.7	13.4	17.9	2.9	4.5	4.6	9.3	13.4	16.6
Cycle Q Clear(g_c), s	27.8	5.1	1.4	0.7	13.4	17.9	2.9	4.5	4.6	9.3	13.4	16.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	532	1771	905	48	806	530	153	320	332	392	389	796
V/C Ratio(X)	0.95	0.19	0.05	0.27	0.65	0.62	0.36	0.29	0.29	0.83	0.69	0.49
Avail Cap(c_a), veh/h	708	2338	1152	159	1243	719	195	512	530	481	595	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	13.8	8.9	47.8	35.0	27.6	43.2	35.5	35.5	43.5	36.7	16.2
Incr Delay (d2), s/veh	16.8	0.0	0.0	1.1	0.3	0.4	0.5	0.2	0.2	8.6	0.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.1	2.5	0.6	0.4	6.6	7.6	1.5	2.2	2.3	4.9	7.0	7.1
LnGrp Delay(d),s/veh	51.1	13.8	8.9	48.8	35.4	28.1	43.7	35.7	35.7	52.0	37.5	16.4
LnGrp LOS	D	B	A	D	D	C	D	D	D	D	D	B
Approach Vol, veh/h		882			863			245			984	
Approach Delay, s/veh		34.9			32.8			37.5			34.0	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	55.0	12.6	25.8	34.0	27.7	15.4	23.0
Change Period (Y+Rc), s	4.0	4.9	4.0	4.9	4.0	4.9	4.0	4.9
Max Green Setting (Gmax), s	9.0	66.2	11.0	32.0	40.0	35.2	14.0	29.0
Max Q Clear Time (g_c+I1), s	2.7	7.1	4.9	18.6	29.8	19.9	11.3	6.6
Green Ext Time (p_c), s	0.0	0.8	0.0	0.7	0.2	1.3	0.1	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	34.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	164	539	126	315	608	18	191	53	216	77	50	288
Future Volume (veh/h)	164	539	126	315	608	18	191	53	216	77	50	288
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	173	567	110	332	640	18	201	56	163	81	53	183
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	764	148	367	1227	34	310	325	264	201	132	454
Arrive On Green	0.12	0.26	0.26	0.21	0.35	0.35	0.17	0.17	0.17	0.18	0.18	0.18
Sat Flow, veh/h	1774	2958	572	1774	3513	99	1774	1863	1514	1093	715	1468
Grp Volume(v), veh/h	173	339	338	332	322	336	201	56	163	134	0	183
Grp Sat Flow(s),veh/h/ln	1774	1770	1760	1774	1770	1843	1774	1863	1514	1808	0	1468
Q Serve(g_s), s	10.5	19.2	19.4	20.0	15.9	15.9	11.6	2.8	10.9	7.2	0.0	10.9
Cycle Q Clear(g_c), s	10.5	19.2	19.4	20.0	15.9	15.9	11.6	2.8	10.9	7.2	0.0	10.9
Prop In Lane	1.00		0.32	1.00		0.05	1.00		1.00	0.60		1.00
Lane Grp Cap(c), veh/h	206	457	455	367	618	644	310	325	264	333	0	454
V/C Ratio(X)	0.84	0.74	0.74	0.90	0.52	0.52	0.65	0.17	0.62	0.40	0.00	0.40
Avail Cap(c_a), veh/h	372	636	632	501	765	796	456	479	389	463	0	560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.5	37.3	37.4	42.4	28.4	28.4	42.1	38.5	41.9	39.4	0.0	30.7
Incr Delay (d2), s/veh	8.9	5.3	5.5	15.9	1.5	1.4	4.8	0.5	4.9	1.7	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	10.1	10.1	11.4	8.0	8.4	6.1	1.5	4.9	3.7	0.0	4.6
LnGrp Delay(d),s/veh	56.4	42.7	42.9	58.3	29.8	29.8	47.0	39.1	46.8	41.1	0.0	31.9
LnGrp LOS	E	D	D	E	C	C	D	D	D	D		C
Approach Vol, veh/h		850			990			420			317	
Approach Delay, s/veh		45.5			39.4			45.9			35.8	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.7	33.2		25.4	16.7	43.2		24.4
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		5.2
Max Green Setting (Gmax), s	9.0	39.4		* 28	23.0	47.4		28.2
Max Q Clear Time (g_c+I1), s	2.0	21.4		12.9	12.5	17.9		13.6
Green Ext Time (p_c), s	0.0	6.9		2.4	0.3	8.3		2.7

Intersection Summary	
HCM 2010 Ctrl Delay	42.0
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
9: Bodway Pkwy & E Cotati Ave

05/31/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	164	539	126	315	608	18	191	53	216	77	50	288
Future Volume (veh/h)	164	539	126	315	608	18	191	53	216	77	50	288
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	173	567	110	332	640	18	128	157	163	81	53	183
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	210	772	149	373	1241	35	337	353	621	145	95	377
Arrive On Green	0.12	0.26	0.26	0.21	0.35	0.35	0.19	0.19	0.19	0.13	0.13	0.13
Sat Flow, veh/h	1774	2958	572	1774	3513	99	1774	1863	1518	1093	715	1432
Grp Volume(v), veh/h	173	339	338	332	322	336	128	157	163	134	0	183
Grp Sat Flow(s),veh/h/ln	1774	1770	1760	1774	1770	1843	1774	1863	1518	1808	0	1432
Q Serve(g_s), s	8.9	16.4	16.5	17.0	13.5	13.5	5.9	7.0	6.8	6.5	0.0	10.3
Cycle Q Clear(g_c), s	8.9	16.4	16.5	17.0	13.5	13.5	5.9	7.0	6.8	6.5	0.0	10.3
Prop In Lane	1.00		0.32	1.00		0.05	1.00		1.00	0.60		1.00
Lane Grp Cap(c), veh/h	210	462	460	373	625	651	337	353	621	240	0	377
V/C Ratio(X)	0.82	0.73	0.74	0.89	0.52	0.52	0.38	0.44	0.26	0.56	0.00	0.49
Avail Cap(c_a), veh/h	379	603	600	531	754	785	531	557	787	247	0	383
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.3	31.6	31.6	35.9	23.9	23.9	33.1	33.6	18.9	38.0	0.0	30.1
Incr Delay (d2), s/veh	7.9	5.4	5.6	12.7	1.4	1.4	1.5	1.9	0.5	4.7	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	8.7	8.7	9.6	6.8	7.1	3.0	3.8	2.9	3.6	0.0	4.3
LnGrp Delay(d),s/veh	48.2	37.0	37.2	48.7	25.3	25.3	34.6	35.4	19.3	42.8	0.0	32.2
LnGrp LOS	D	D	D	D	C	C	C	D	B	D		C
Approach Vol, veh/h		850			990			448			317	
Approach Delay, s/veh		39.4			33.1			29.4			36.7	
Approach LOS		D			C			C			D	

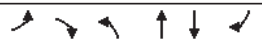
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.7	29.4		17.6	15.1	38.0		23.0
Change Period (Y+Rc), s	4.0	4.9		* 5.2	4.0	4.9		5.2
Max Green Setting (Gmax), s	23.0	31.9		* 13	20.0	39.9		28.0
Max Q Clear Time (g_c+I1), s	19.0	18.5		12.3	10.9	15.5		9.0
Green Ext Time (p_c), s	0.7	5.8		0.1	0.3	7.7		3.6

Intersection Summary	
HCM 2010 Ctrl Delay	34.9
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

05/16/2019



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	437	356	255	823	1014	577
Future Volume (veh/h)	437	356	255	823	1014	577
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.98	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1976	1863	1863	1863	1863
Adj Flow Rate, veh/h	451	202	263	848	1045	527
Adj No. of Lanes	0	0	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	396	177	192	1110	846	704
Arrive On Green	0.32	0.32	0.11	0.60	0.45	0.45
Sat Flow, veh/h	1218	546	1774	1863	1863	1550
Grp Volume(v), veh/h	654	0	263	848	1045	527
Grp Sat Flow(s),veh/h/ln	1766	0	1774	1863	1863	1550
Q Serve(g_s), s	39.0	0.0	13.0	40.5	54.5	33.7
Cycle Q Clear(g_c), s	39.0	0.0	13.0	40.5	54.5	33.7
Prop In Lane	0.69	0.31	1.00			1.00
Lane Grp Cap(c), veh/h	574	0	192	1110	846	704
V/C Ratio(X)	1.14	0.00	1.37	0.76	1.24	0.75
Avail Cap(c_a), veh/h	574	0	192	1110	846	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	0.0	53.5	18.0	32.8	27.1
Incr Delay (d2), s/veh	82.2	0.0	195.3	2.9	116.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.1	0.0	16.8	21.6	55.2	15.1
LnGrp Delay(d),s/veh	122.7	0.0	248.8	20.9	148.8	31.0
LnGrp LOS	F		F	C	F	C
Approach Vol, veh/h	654			1111	1572	
Approach Delay, s/veh	122.7			74.8	109.3	
Approach LOS	F			E	F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		77.0		43.0	17.0	60.0		
Change Period (Y+Rc), s		5.5		4.0	4.0	5.5		
Max Green Setting (Gmax), s		71.5		39.0	13.0	54.5		
Max Q Clear Time (g_c+I1), s		42.5		41.0	15.0	56.5		
Green Ext Time (p_c), s		1.7		0.0	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	100.5
HCM 2010 LOS	F

Notes

HCM 2010 Signalized Intersection Summary
10: Petaluma Hill Rd & E Cotati Ave

05/31/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	437	356	255	823	1014	577
Future Volume (veh/h)	437	356	255	823	1014	577
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1937	1937	1863	1863	1863	1863
Adj Flow Rate, veh/h	451	367	263	848	1045	595
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	406	845	520	1627	1012	1191
Arrive On Green	0.22	0.22	0.29	0.87	0.54	0.54
Sat Flow, veh/h	1845	1647	1774	1863	1863	1551
Grp Volume(v), veh/h	451	367	263	848	1045	595
Grp Sat Flow(s),veh/h/ln	1845	1647	1774	1863	1863	1551
Q Serve(g_s), s	33.0	0.0	18.5	15.9	81.5	22.1
Cycle Q Clear(g_c), s	33.0	0.0	18.5	15.9	81.5	22.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	406	845	520	1627	1012	1191
V/C Ratio(X)	1.11	0.43	0.51	0.52	1.03	0.50
Avail Cap(c_a), veh/h	406	845	520	1627	1012	1191
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	22.9	44.0	2.2	34.2	6.8
Incr Delay (d2), s/veh	78.3	0.1	0.3	1.2	37.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.6	15.2	9.1	8.6	52.0	18.7
LnGrp Delay(d),s/veh	136.8	23.0	44.3	3.4	71.2	8.3
LnGrp LOS	F	C	D	A	F	A
Approach Vol, veh/h	818			1111	1640	
Approach Delay, s/veh	85.7			13.1	48.4	
Approach LOS	F			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		136.5		37.0	49.5	87.0		
Change Period (Y+Rc), s		5.5		4.0	5.5	* 5.5		
Max Green Setting (Gmax), s		107.5		33.0	22.0	* 82		
Max Q Clear Time (g_c+I1), s		17.9		35.0	20.5	83.5		
Green Ext Time (p_c), s		1.7		0.0	0.1	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	46.0
HCM 2010 LOS	D

Notes

HCM 2010 AWSC
12: Camino Colegio & Mitchell Dr

05/16/2019

Intersection	
Intersection Delay, s/veh	18.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	235	258	58	292	60	191	29	46	40	44	2
Future Vol, veh/h	9	235	258	58	292	60	191	29	46	40	44	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	2	2	2	2	0	2	2	2	0	2	0
Mvmt Flow	10	255	280	63	317	65	208	32	50	43	48	2
Number of Lanes	1	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	3
HCM Control Delay	18.3	17.2	22.7	13.5
HCM LOS	C	C	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1
Vol Left, %	72%	100%	0%	0%	28%	0%	47%
Vol Thru, %	11%	0%	100%	23%	72%	71%	51%
Vol Right, %	17%	0%	0%	77%	0%	29%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	266	9	157	336	204	206	86
LT Vol	191	9	0	0	58	0	40
Through Vol	29	0	157	78	146	146	44
RT Vol	46	0	0	258	0	60	2
Lane Flow Rate	289	10	170	366	222	224	93
Geometry Grp	7	7	7	7	8	8	7
Degree of Util (X)	0.625	0.02	0.332	0.657	0.483	0.466	0.218
Departure Headway (Hd)	7.787	7.501	7.023	6.472	7.842	7.485	8.383
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	463	477	511	556	459	481	427
Service Time	5.54	5.253	4.775	4.224	5.603	5.246	6.151
HCM Lane V/C Ratio	0.624	0.021	0.333	0.658	0.484	0.466	0.218
HCM Control Delay	22.7	10.4	13.3	20.8	17.8	16.7	13.5
HCM Lane LOS	C	B	B	C	C	C	B
HCM 95th-tile Q	4.2	0.1	1.4	4.8	2.6	2.4	0.8

Intersection												
Int Delay, s/veh	8.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	209	79	39	236	21	152	32	66	11	16	21
Future Vol, veh/h	33	209	79	39	236	21	152	32	66	11	16	21
Conflicting Peds, #/hr	0	0	7	0	0	5	0	0	4	0	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	1	2	1	1	2	1	1	1	1	1	1	1
Mvmt Flow	35	225	85	42	254	23	163	34	71	12	17	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	282	0	0	317	0	0	568	711	166	559	742	147
Stage 1	-	-	-	-	-	-	345	345	-	355	355	-
Stage 2	-	-	-	-	-	-	223	366	-	204	387	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	1285	-	-	1247	-	-	408	359	852	414	344	877
Stage 1	-	-	-	-	-	-	647	637	-	638	631	-
Stage 2	-	-	-	-	-	-	762	624	-	782	611	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1279	-	-	1239	-	-	360	334	843	330	320	870
Mov Cap-2 Maneuver	-	-	-	-	-	-	360	334	-	330	320	-
Stage 1	-	-	-	-	-	-	625	615	-	618	606	-
Stage 2	-	-	-	-	-	-	695	600	-	655	590	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	1.1	27.7	14.1
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	419	1279	-	-	1239	-	-	447
HCM Lane V/C Ratio	0.642	0.028	-	-	0.034	-	-	0.115
HCM Control Delay (s)	27.7	7.9	-	-	8	-	-	14.1
HCM Lane LOS	D	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	4.4	0.1	-	-	0.1	-	-	0.4

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	349	319	268	52
Demand Flow Rate, veh/h	355	324	271	52
Vehicles Circulating, veh/h	72	234	281	466
Vehicles Exiting, veh/h	446	318	146	92
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	3	4	7	5
Ped Cap Adj	1.000	0.999	0.999	0.999
Approach Delay, s/veh	6.9	8.2	7.8	5.9
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	355	324	271	52
Cap Entry Lane, veh/h	1051	894	853	709
Entry HV Adj Factor	0.984	0.984	0.988	0.997
Flow Entry, veh/h	349	319	268	52
Cap Entry, veh/h	1034	880	842	706
V/C Ratio	0.338	0.363	0.318	0.073
Control Delay, s/veh	6.9	8.2	7.8	5.9
LOS	A	A	A	A
95th %tile Queue, veh	2	2	1	0

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	226	34	30	258	28	19	0	24	12	0	14
Future Vol, veh/h	22	226	34	30	258	28	19	0	24	12	0	14
Conflicting Peds, #/hr	0	0	0	0	0	8	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	92	92	91	91	92	92	92	91	92	91
Heavy Vehicles, %	1	2	2	2	2	2	2	2	2	1	2	1
Mvmt Flow	24	248	37	33	284	31	21	0	26	13	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	323	0	0	285	0	0	523	704	143	546	707	166
Stage 1	-	-	-	-	-	-	315	315	-	374	374	-
Stage 2	-	-	-	-	-	-	208	389	-	172	333	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.52	6.54	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.52	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.51	4.02	3.31
Pot Cap-1 Maneuver	1241	-	-	1274	-	-	437	360	879	423	359	852
Stage 1	-	-	-	-	-	-	671	654	-	622	616	-
Stage 2	-	-	-	-	-	-	775	607	-	816	642	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1232	-	-	1274	-	-	413	339	879	392	338	846
Mov Cap-2 Maneuver	-	-	-	-	-	-	413	339	-	392	338	-
Stage 1	-	-	-	-	-	-	658	642	-	605	591	-
Stage 2	-	-	-	-	-	-	737	583	-	776	630	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.8	11.7	11.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	587	1232	-	-	1274	-	-	551
HCM Lane V/C Ratio	0.08	0.02	-	-	0.026	-	-	0.052
HCM Control Delay (s)	11.7	8	-	-	7.9	0.1	-	11.9
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	127	130	191	178	164	121
Future Vol, veh/h	127	130	191	178	164	121
Conflicting Peds, #/hr	0	11	0	0	0	19
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	140	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	138	141	208	193	178	132

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	872	274	329	0	-	0
Stage 1	263	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	321	765	1231	-	-	-
Stage 1	781	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	256	743	1209	-	-	-
Mov Cap-2 Maneuver	256	-	-	-	-	-
Stage 1	635	-	-	-	-	-
Stage 2	533	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.6	4.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1209	-	256	743	-	-
HCM Lane V/C Ratio	0.172	-	0.539	0.19	-	-
HCM Control Delay (s)	8.6	-	34.4	11	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.6	-	2.9	0.7	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	0	0	37	0	320	18	0	284	8
Future Vol, veh/h	0	0	5	0	0	37	0	320	18	0	284	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	88	92	88	92	88	88	88	88	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	0	0	5	0	0	42	0	364	20	0	323	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	328	-	-	376	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	-	-	6.2	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	713	0	0	675	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	713	-	-	674	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	10.7	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	713	674	-	-
HCM Lane V/C Ratio	-	-	0.008	0.062	-	-
HCM Control Delay (s)	-	-	10.1	10.7	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0	0.2	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	9	12	0	37	20	284	31	62	209	12
Future Vol, veh/h	6	0	9	12	0	37	20	284	31	62	209	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	50	-	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	88	92	88	92	88	88	88	88	92
Heavy Vehicles, %	2	2	2	0	2	0	2	2	0	0	2	2
Mvmt Flow	7	0	10	14	0	42	22	323	35	70	238	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	791	789	245	777	778	343	251	0	0	360	0	0
Stage 1	385	385	-	387	387	-	-	-	-	-	-	-
Stage 2	406	404	-	390	391	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.52	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4.018	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	307	323	794	317	328	704	1314	-	-	1210	-	-
Stage 1	638	611	-	641	610	-	-	-	-	-	-	-
Stage 2	622	599	-	638	607	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	271	297	794	294	302	703	1314	-	-	1208	-	-
Mov Cap-2 Maneuver	271	297	-	294	302	-	-	-	-	-	-	-
Stage 1	625	576	-	626	596	-	-	-	-	-	-	-
Stage 2	573	585	-	594	572	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.3	12.2	0.4	1.8
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1314	-	-	448	294	703	1208	-	-
HCM Lane V/C Ratio	0.017	-	-	0.036	0.046	0.06	0.058	-	-
HCM Control Delay (s)	7.8	0	-	13.3	17.8	10.4	8.2	-	-
HCM Lane LOS	A	A	-	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.2	0.2	-	-

HCM 2010 Roundabout
18: SOMO Ave/Valley House Dr & Bodway Pkwy

05/16/2019

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	245	500	55	257
Demand Flow Rate, veh/h	250	510	56	262
Vehicles Circulating, veh/h	251	80	433	219
Vehicles Exiting, veh/h	230	409	68	371
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	5
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	7.2	9.3	5.8	7.1
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	250	510	56	262
Cap Entry Lane, veh/h	879	1043	733	908
Entry HV Adj Factor	0.981	0.980	0.977	0.980
Flow Entry, veh/h	245	500	55	257
Cap Entry, veh/h	863	1022	716	889
V/C Ratio	0.284	0.489	0.076	0.289
Control Delay, s/veh	7.2	9.3	5.8	7.1
LOS	A	A	A	A
95th %tile Queue, veh	1	3	0	1

HCM 2010 Signalized Intersection Summary
19: Petaluma Hill Rd & Valley House Dr

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	0	319	2	2	4	380	968	2	0	1175	120
Future Volume (veh/h)	80	0	319	2	2	4	380	968	2	0	1175	120
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		0.98	1.00		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	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	82	0	233	2	2	1	388	988	2	0	1199	118
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	298	0	260	5	5	3	223	1282	3	2	985	837
Arrive On Green	0.17	0.00	0.17	0.01	0.01	0.01	0.13	0.69	0.69	0.00	0.53	0.53
Sat Flow, veh/h	1774	0	1548	706	706	353	1774	1858	4	1774	1863	1583
Grp Volume(v), veh/h	82	0	233	5	0	0	388	0	990	0	1199	118
Grp Sat Flow(s),veh/h/ln	1774	0	1548	1765	0	0	1774	0	1862	1774	1863	1583
Q Serve(g_s), s	4.5	0.0	16.5	0.3	0.0	0.0	14.0	0.0	39.3	0.0	59.0	4.2
Cycle Q Clear(g_c), s	4.5	0.0	16.5	0.3	0.0	0.0	14.0	0.0	39.3	0.0	59.0	4.2
Prop In Lane	1.00		1.00	0.40		0.20	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	298	0	260	14	0	0	223	0	1285	2	985	837
V/C Ratio(X)	0.28	0.00	0.90	0.37	0.00	0.00	1.74	0.00	0.77	0.00	1.22	0.14
Avail Cap(c_a), veh/h	350	0	305	95	0	0	223	0	1285	64	985	837
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	0.0	45.5	55.1	0.0	0.0	48.8	0.0	11.4	0.0	26.3	13.4
Incr Delay (d2), s/veh	0.2	0.0	22.9	11.8	0.0	0.0	352.4	0.0	2.6	0.0	107.1	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	2.2	0.0	8.7	0.2	0.0	0.0	28.6	0.0	20.7	0.0	59.4	1.8
LnGrp Delay(d),s/veh	40.7	0.0	68.4	66.9	0.0	0.0	401.2	0.0	14.1	0.0	133.4	13.4
LnGrp LOS	D		E	E			F		B		F	B
Approach Vol, veh/h		315			5			1378			1317	
Approach Delay, s/veh		61.2			66.9			123.1			122.6	
Approach LOS		E			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	82.5		22.7	18.0	64.5		6.4
Change Period (Y+Rc), s	4.0	5.5		4.0	4.0	5.5		5.5
Max Green Setting (Gmax), s	6.0	69.0		22.0	14.0	59.0		6.0
Max Q Clear Time (g_c+I1), s	10.0	41.3		18.5	16.0	61.0		2.3
Green Ext Time (p_c), s	0.0	2.2		0.3	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	116.3
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
19: Petaluma Hill Rd & Valley House Dr

05/31/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	0	319	2	2	4	380	968	2	0	1175	120
Future Volume (veh/h)	80	0	319	2	2	4	380	968	2	0	1175	120
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		0.97	1.00		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	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	82	0	233	2	2	1	388	988	2	0	1199	118
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	111	0	529	5	5	3	485	1542	3	1	969	923
Arrive On Green	0.06	0.00	0.06	0.01	0.01	0.01	0.27	0.83	0.83	0.00	0.52	0.52
Sat Flow, veh/h	1774	0	1542	706	706	353	1774	1858	4	1774	1863	1583
Grp Volume(v), veh/h	82	0	233	5	0	0	388	0	990	0	1199	118
Grp Sat Flow(s),veh/h/ln	1774	0	1542	1765	0	0	1774	0	1862	1774	1863	1583
Q Serve(g_s), s	6.8	0.0	0.0	0.4	0.0	0.0	30.5	0.0	29.0	0.0	78.0	5.0
Cycle Q Clear(g_c), s	6.8	0.0	0.0	0.4	0.0	0.0	30.5	0.0	29.0	0.0	78.0	5.0
Prop In Lane	1.00		1.00	0.40		0.20	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	0	529	13	0	0	485	0	1545	1	969	923
V/C Ratio(X)	0.74	0.00	0.44	0.38	0.00	0.00	0.80	0.00	0.64	0.00	1.24	0.13
Avail Cap(c_a), veh/h	260	0	659	71	0	0	485	0	1545	47	969	923
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.35	0.00	0.35	0.00	1.00	1.00
Uniform Delay (d), s/veh	69.1	0.0	38.8	74.1	0.0	0.0	50.7	0.0	4.6	0.0	36.0	14.1
Incr Delay (d2), s/veh	3.6	0.0	0.2	12.6	0.0	0.0	3.2	0.0	0.7	0.0	116.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	0.0	7.5	0.3	0.0	0.0	15.4	0.0	14.9	0.0	71.0	2.6
LnGrp Delay(d),s/veh	72.6	0.0	39.0	86.6	0.0	0.0	53.9	0.0	5.4	0.0	152.0	14.4
LnGrp LOS	E		D	F			D		A		F	B
Approach Vol, veh/h		315			5			1378			1317	
Approach Delay, s/veh		47.8			86.6			19.0			139.6	
Approach LOS		D			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	10.0	130.0		13.4	46.5	83.5		6.6
Change Period (Y+Rc), s	4.0	5.5		4.0	5.5	* 5.5		5.5
Max Green Setting (Gmax), s	6.0	99.0		22.0	25.0	* 78		6.0
Max Q Clear Time (g_c+I1), s	10.0	31.0		8.8	32.5	80.0		2.4
Green Ext Time (p_c), s	0.0	2.2		0.6	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	74.8
HCM 2010 LOS	E

Notes

HCM 2010 TWSC
20: Old Redwood Hwy & E Railroad Ave

05/16/2019

Intersection	
Int Delay, s/veh	35

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	42	36	16	33	27	58	735	36	40	381	30
Future Vol, veh/h	59	42	36	16	33	27	58	735	36	40	381	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	-	60	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	46	39	17	36	29	63	799	39	43	414	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1494	1482	431	1505	1479	820	447	0	0	839	0	0
Stage 1	517	517	-	946	946	-	-	-	-	-	-	-
Stage 2	977	965	-	559	533	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	101	125	624	100	126	375	1113	-	-	796	-	-
Stage 1	541	534	-	314	340	-	-	-	-	-	-	-
Stage 2	302	333	-	513	525	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	65	111	624	59	112	375	1113	-	-	795	-	-
Mov Cap-2 Maneuver	65	111	-	59	112	-	-	-	-	-	-	-
Stage 1	510	505	-	296	320	-	-	-	-	-	-	-
Stage 2	233	314	-	414	497	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 327.9	85.5	0.6	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1113	-	-	102	119	795	-	-
HCM Lane V/C Ratio	0.057	-	-	1.46	0.694	0.055	-	-
HCM Control Delay (s)	8.4	-	-	$ 327.9	85.5	9.8	-	-
HCM Lane LOS	A	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	11	3.7	0.2	-	-

Notes

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

HCM 2010 Signalized Intersection Summary
20: Old Redwood Hwy & E Railroad Ave

05/31/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	42	36	16	33	27	58	735	36	40	381	30
Future Volume (veh/h)	59	42	36	16	33	27	58	735	36	40	381	30
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		0.98	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	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	64	46	39	17	36	29	63	799	39	43	414	33
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	110	70	104	153	100	98	947	46	76	896	71
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.05	0.54	0.54	0.04	0.53	0.53
Sat Flow, veh/h	522	653	417	174	906	591	1774	1759	86	1774	1703	136
Grp Volume(v), veh/h	149	0	0	82	0	0	63	0	838	43	0	447
Grp Sat Flow(s),veh/h/ln	1592	0	0	1671	0	0	1774	0	1845	1774	0	1839
Q Serve(g_s), s	2.4	0.0	0.0	0.0	0.0	0.0	2.0	0.0	22.3	1.4	0.0	8.8
Cycle Q Clear(g_c), s	4.8	0.0	0.0	2.4	0.0	0.0	2.0	0.0	22.3	1.4	0.0	8.8
Prop In Lane	0.43		0.26	0.21		0.35	1.00		0.05	1.00		0.07
Lane Grp Cap(c), veh/h	357	0	0	357	0	0	98	0	993	76	0	968
V/C Ratio(X)	0.42	0.00	0.00	0.23	0.00	0.00	0.65	0.00	0.84	0.56	0.00	0.46
Avail Cap(c_a), veh/h	760	0	0	779	0	0	273	0	1440	162	0	1321
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.9	0.0	0.0	21.0	0.0	0.0	26.8	0.0	11.3	27.2	0.0	8.6
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.3	0.0	0.0	7.0	0.0	3.2	6.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	1.2	0.0	0.0	1.2	0.0	12.1	0.8	0.0	4.6
LnGrp Delay(d),s/veh	22.7	0.0	0.0	21.3	0.0	0.0	33.8	0.0	14.5	33.5	0.0	8.9
LnGrp LOS	C			C			C		B	C		A
Approach Vol, veh/h		149			82			901			490	
Approach Delay, s/veh		22.7			21.3			15.9			11.1	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.0	36.2		14.8	7.7	35.5		14.8
Change Period (Y+Rc), s	4.5	5.0		5.0	4.5	5.0		5.0
Max Green Setting (Gmax), s	5.3	45.2		25.0	8.9	41.6		25.0
Max Q Clear Time (g_c+I1), s	13.4	24.3		6.8	4.0	10.8		4.4
Green Ext Time (p_c), s	0.0	6.9		0.7	0.0	2.9		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.3
HCM 2010 LOS	B

HCM 2010 TWSC
21: E Railroad Ave & Bodway Pkwy

05/16/2019

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	24	71	88	69	39	15
Future Vol, veh/h	24	71	88	69	39	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	27	81	100	78	44	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	178	0	-	0	274	139
Stage 1	-	-	-	-	139	-
Stage 2	-	-	-	-	135	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1404	-	-	-	718	912
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	894	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1404	-	-	-	704	912
Mov Cap-2 Maneuver	-	-	-	-	704	-
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	894	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1404	-	-	-	752
HCM Lane V/C Ratio	0.019	-	-	-	0.082
HCM Control Delay (s)	7.6	0	-	-	10.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

HCM 2010 TWSC
22: Petaluma Hill Rd & E Railroad Ave 05/16/2019

Intersection												
Int Delay, s/veh	203											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	54	3	54	0	2	11	92	1294	2	6	1433	63
Future Vol, veh/h	54	3	54	0	2	11	92	1294	2	6	1433	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	3	56	0	2	11	96	1348	2	6	1493	66

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3053	3047	1493	3109	3112	1349	1559	0	0	1350	0	0
Stage 1	1505	1505	-	1541	1541	-	-	-	-	-	-	-
Stage 2	1548	1542	-	1568	1571	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 8	13	151	7	11	184	424	-	-	510	-	-
Stage 1	151	184	-	144	177	-	-	-	-	-	-	-
Stage 2	143	177	-	139	171	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 5	10	151	3	8	184	424	-	-	510	-	-
Mov Cap-2 Maneuver	~ 5	10	-	3	8	-	-	-	-	-	-	-
Stage 1	117	182	-	111	137	-	-	-	-	-	-	-
Stage 2	102	137	-	85	169	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 5484	127.1	1.1	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	424	-	-	10	42	510	-	-
HCM Lane V/C Ratio	0.226	-	-	11.563	0.322	0.012	-	-
HCM Control Delay (s)	16	-	-	$ 5484	127.1	12.1	-	-
HCM Lane LOS	C	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.9	-	-	15.9	1.1	0	-	-

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

HCM 2010 Signalized Intersection Summary
22: Petaluma Hill Rd & E Railroad Ave 05/31/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	3	54	0	2	11	92	1294	2	6	1433	63
Future Volume (veh/h)	54	3	54	0	2	11	92	1294	2	6	1433	63
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		0.97	1.00		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	1900	1863	1863	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	56	3	56	0	2	11	96	1348	2	6	1493	66
Adj No. of Lanes	0	1	1	0	1	0	1	1	0	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	6	111	0	18	99	126	1388	2	129	1394	1185
Arrive On Green	0.07	0.07	0.07	0.00	0.07	0.07	0.07	0.75	0.75	0.07	0.75	0.75
Sat Flow, veh/h	1202	84	1544	0	249	1371	1774	1859	3	1774	1863	1583
Grp Volume(v), veh/h	59	0	56	0	0	13	96	0	1350	6	1493	66
Grp Sat Flow(s),veh/h/ln	1286	0	1544	0	0	1621	1774	0	1862	1774	1863	1583
Q Serve(g_s), s	5.5	0.0	4.8	0.0	0.0	1.0	7.3	0.0	92.1	0.4	103.0	1.5
Cycle Q Clear(g_c), s	6.5	0.0	4.8	0.0	0.0	1.0	7.3	0.0	92.1	0.4	103.0	1.5
Prop In Lane	0.95		1.00	0.00		0.85	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	0	111	0	0	117	126	0	1390	129	1394	1185
V/C Ratio(X)	0.41	0.00	0.50	0.00	0.00	0.11	0.76	0.00	0.97	0.05	1.07	0.06
Avail Cap(c_a), veh/h	268	0	247	0	0	259	129	0	1393	129	1394	1185
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.7	0.0	61.5	0.0	0.0	59.7	62.8	0.0	16.1	59.4	17.3	4.6
Incr Delay (d2), s/veh	1.9	0.0	3.5	0.0	0.0	0.4	22.9	0.0	17.6	0.1	45.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	2.2	0.0	0.0	0.5	4.4	0.0	53.3	0.2	69.6	0.7
LnGrp Delay(d),s/veh	64.6	0.0	65.0	0.0	0.0	60.2	85.8	0.0	33.8	59.5	63.0	4.6
LnGrp LOS	E		E			E	F		C	E	F	A
Approach Vol, veh/h		115			13			1446			1565	
Approach Delay, s/veh		64.8			60.2			37.2			60.6	
Approach LOS		E			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	107.7		14.9	14.7	108.0		14.9
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	103.0		22.0	10.0	103.0		22.0
Max Q Clear Time (g_c+I1), s	2.4	94.1		8.5	9.3	105.0		3.0
Green Ext Time (p_c), s	0.0	6.7		0.3	0.0	0.0		0.0

Intersection Summary												
HCM 2010 Ctrl Delay			50.0									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	197	19	10	149	639	36	695	23	782	588	36
Future Volume (veh/h)	22	197	19	10	149	639	36	695	23	782	588	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	1	0	0	2	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
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	1976	1937	1976	1976	1937	1976	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	23	207	17	11	157	571	38	732	22	823	619	34
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	429	33	34	112	393	8	393	6	658	670	30
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.21	0.21	0.21	0.37	0.37	0.37
Sat Flow, veh/h	72	1412	110	10	369	1290	92	1778	53	1774	1749	96
Grp Volume(v), veh/h	247	0	0	739	0	0	792	0	0	823	0	653
Grp Sat Flow(s),veh/h/ln	1594	0	0	1670	0	0	1923	0	0	1774	0	1845
Q Serve(g_s), s	0.0	0.0	0.0	15.4	0.0	0.0	25.5	0.0	0.0	44.5	0.0	41.4
Cycle Q Clear(g_c), s	12.4	0.0	0.0	36.5	0.0	0.0	25.5	0.0	0.0	44.5	0.0	41.4
Prop In Lane	0.09		0.07	0.01		0.77	0.05		0.03	1.00		0.05
Lane Grp Cap(c), veh/h	518	0	0	538	0	0	410	0	0	658	0	685
V/C Ratio(X)	0.48	0.00	0.00	1.37	0.00	0.00	1.93	0.00	0.00	1.25	0.00	0.95
Avail Cap(c_a), veh/h	518	0	0	538	0	0	409	0	0	658	0	684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.4	0.0	0.0	42.7	0.0	0.0	47.3	0.0	0.0	37.8	0.0	37.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	179.1	0.0	0.0	427.4	0.0	0.0	125.2	0.0	23.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	1.3
%ile BackOfQ(50%),veh/ln	6.6	0.0	0.0	44.6	0.0	0.0	63.3	0.0	0.0	44.6	0.0	26.1
LnGrp Delay(d),s/veh	33.6	0.0	0.0	221.9	0.0	0.0	479.1	0.0	0.0	163.0	0.0	61.5
LnGrp LOS	C			F			F			F		E
Approach Vol, veh/h		247			739			792			1476	
Approach Delay, s/veh		33.6			221.9			479.1			118.1	
Approach LOS		C			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		30.0		41.0		49.0		41.0
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		25.5		36.5		44.5		36.5
Max Q Clear Time (g_c+I1), s		27.5		14.4		46.5		38.5
Green Ext Time (p_c), s		0.0		0.5		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	223.1
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
23: Main St/Petaluma Hill Rd & Adobe Rd

05/31/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	197	19	10	149	639	36	695	23	782	588	36
Future Volume (veh/h)	22	197	19	10	149	639	36	695	23	782	588	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	1	0	0	2	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
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	1976	1937	1976	1976	1937	1937	1976	1937	1976	1863	1863	1900
Adj Flow Rate, veh/h	23	207	17	11	157	571	38	732	22	823	619	34
Adj No. of Lanes	0	1	0	0	1	1	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	352	28	44	419	1015	10	488	8	701	712	36
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.26	0.26	0.26	0.40	0.40	0.40
Sat Flow, veh/h	92	1555	122	51	1854	1611	92	1778	53	1774	1749	96
Grp Volume(v), veh/h	247	0	0	168	0	571	792	0	0	823	0	653
Grp Sat Flow(s),veh/h/ln	1768	0	0	1906	0	1611	1923	0	0	1774	0	1845
Q Serve(g_s), s	3.1	0.0	0.0	0.0	0.0	24.7	31.5	0.0	0.0	47.0	0.0	39.4
Cycle Q Clear(g_c), s	14.1	0.0	0.0	8.7	0.0	24.7	31.5	0.0	0.0	47.0	0.0	39.4
Prop In Lane	0.09		0.07	0.07		1.00	0.05		0.03	1.00		0.05
Lane Grp Cap(c), veh/h	433	0	0	463	0	1015	512	0	0	701	0	730
V/C Ratio(X)	0.57	0.00	0.00	0.36	0.00	0.56	1.55	0.00	0.00	1.17	0.00	0.89
Avail Cap(c_a), veh/h	449	0	0	481	0	1031	510	0	0	701	0	730
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.9	0.0	0.0	39.0	0.0	13.2	43.7	0.0	0.0	35.9	0.0	33.9
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.2	0.0	0.4	256.0	0.0	0.0	92.6	0.0	13.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.5
%ile BackOfQ(50%),veh/ln	7.3	0.0	0.0	4.7	0.0	18.7	54.0	0.0	0.0	40.8	0.0	23.1
LnGrp Delay(d),s/veh	41.9	0.0	0.0	39.2	0.0	13.6	304.2	0.0	0.0	128.6	0.0	47.6
LnGrp LOS	D			D		B	F			F		D
Approach Vol, veh/h		247			739			792			1476	
Approach Delay, s/veh		41.9			19.4			304.2			92.7	
Approach LOS		D			B			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		36.0		31.4		51.5		31.4
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		31.5		28.0		47.0		28.0
Max Q Clear Time (g_c+I1), s		33.5		16.1		49.0		26.7
Green Ext Time (p_c), s		0.0		0.4		0.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	123.7
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
24: N McDowell Blvd & Old Redwood Hwy

05/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	973	643	103	888	7	800	48	226	14	86	322
Future Volume (veh/h)	115	973	643	103	888	7	800	48	226	14	86	322
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	128	1081	0	114	987	5	838	0	129	16	96	210
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	1.00	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	1277	977	136	1303	7	908	0	398	280	294	247
Arrive On Green	0.15	0.72	0.00	0.08	0.36	0.36	0.26	0.00	0.26	0.16	0.16	0.16
Sat Flow, veh/h	1774	3539	1583	1774	3610	18	3548	0	1556	1774	1863	1565
Grp Volume(v), veh/h	128	1081	0	114	484	508	838	0	129	16	96	210
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1859	1774	0	1556	1774	1863	1565
Q Serve(g_s), s	9.3	28.4	0.0	8.2	31.3	31.3	29.9	0.0	8.7	1.0	5.9	17.0
Cycle Q Clear(g_c), s	9.3	28.4	0.0	8.2	31.3	31.3	29.9	0.0	8.7	1.0	5.9	17.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	136	1277	977	136	639	671	908	0	398	280	294	247
V/C Ratio(X)	0.94	0.85	0.00	0.84	0.76	0.76	0.92	0.00	0.32	0.06	0.33	0.85
Avail Cap(c_a), veh/h	136	1277	977	136	639	671	1010	0	443	396	416	349
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.72	0.72	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	15.5	0.0	59.2	36.5	36.5	47.1	0.0	39.2	46.5	48.6	53.3
Incr Delay (d2), s/veh	47.4	5.2	0.0	32.5	8.2	7.8	12.1	0.0	0.2	0.0	0.2	9.7
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	6.3	14.1	0.0	5.3	16.6	17.4	16.2	0.0	3.8	0.5	3.1	8.0
LnGrp Delay(d),s/veh	102.1	20.7	0.0	91.6	44.7	44.4	59.2	0.0	39.4	46.6	48.9	62.9
LnGrp LOS	F	C		F	D	D	E		D	D	D	E
Approach Vol, veh/h		1209			1106			967			322	
Approach Delay, s/veh		29.3			49.4			56.5			57.9	
Approach LOS		C			D			E			E	

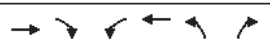
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.0	52.0		25.3	14.0	52.0		38.7
Change Period (Y+Rc), s	4.0	5.1		* 4.8	4.0	* 5.1		5.4
Max Green Setting (Gmax), s	10.0	34.7		* 29	10.0	* 35		37.0
Max Q Clear Time (g_c+I1), s	10.2	30.4		19.0	11.3	33.3		31.9
Green Ext Time (p_c), s	0.0	3.2		0.5	0.0	1.1		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	45.3
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
25: US 101 NB Off-ramp & Old Redwood Hwy

05/16/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1350	1130	0	1952	401	415
Future Volume (veh/h)	1350	1130	0	1952	401	415
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	1436	0	0	2077	427	328
Adj No. of Lanes	2	1	0	2	2	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	2451	1097	0	2451	539	437
Arrive On Green	0.69	0.00	0.00	0.92	0.16	0.16
Sat Flow, veh/h	3632	1583	0	3725	3442	2787
Grp Volume(v), veh/h	1436	0	0	2077	427	328
Grp Sat Flow(s),veh/h/ln	1770	1583	0	1770	1721	1393
Q Serve(g_s), s	13.6	0.0	0.0	13.7	7.8	7.3
Cycle Q Clear(g_c), s	13.6	0.0	0.0	13.7	7.8	7.3
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2451	1097	0	2451	539	437
V/C Ratio(X)	0.59	0.00	0.00	0.85	0.79	0.75
Avail Cap(c_a), veh/h	2451	1097	0	2451	577	467
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.32	1.00	1.00
Uniform Delay (d), s/veh	5.2	0.0	0.0	1.3	26.4	26.2
Incr Delay (d2), s/veh	1.0	0.0	0.0	1.3	7.0	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	0.0	5.8	4.2	3.2
LnGrp Delay(d),s/veh	6.2	0.0	0.0	2.6	33.4	32.5
LnGrp LOS	A			A	C	C
Approach Vol, veh/h	1436			2077	755	
Approach Delay, s/veh	6.2			2.6	33.0	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		50.1				50.1		14.9
Change Period (Y+Rc), s		5.1				5.1		4.7
Max Green Setting (Gmax), s		44.3				44.3		10.9
Max Q Clear Time (g_c+I1), s		15.6				15.7		9.8
Green Ext Time (p_c), s		17.2				24.3		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	9.2
HCM 2010 LOS	A

Appendix B

Internal Capture Calculation Worksheets

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NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	SOMO Village	**Organization:**	W-Trans
Project Location:	Rohnert Park	**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	Feb-19

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820/850	83	ksf	67	42	25
Restaurant	931	20	ksf	15	11	4
Cinema/Entertainment				0		
Residential	210/220/221	1,750	units	854	212	642
Hotel				0		
All Other Land Uses[2]				138	77	61
Total				1074	342	732

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.11	3%	4%	1.07	3%	4%
Retail	1.21	3%	4%	1.18	3%	4%
Restaurant						
Cinema/Entertainment						
Residential	1.15	3%	4%	1.21	3%	4%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		4	0	4	0
Restaurant	0	1		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	8	2	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,255	383	872
Internal Capture Percentage	3%	5%	2%
External Vehicle-Trips[3]	978	308	670
External Transit-Trips[4]	32	8	24
External Non-Motorized Trips[4]	44	12	32

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	18%	27%
Restaurant	55%	25%
Cinema/Entertainment	N/A	N/A
Residential	2%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	SOMO Village
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.11	0	0	1.07	0	0
Retail	1.21	42	51	1.18	25	30
Restaurant	1.00	11	11	1.00	4	4
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.15	212	244	1.21	642	777
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	9		4	0	4	0
Restaurant	1	1		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	16	8	155	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		16	3	0	0	0
Retail	0		6	0	5	0
Restaurant	0	4		0	12	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	9	2	0		0
Hotel	0	2	1	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	9	42	51	32	1	2
Restaurant	6	5	11	5	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	4	240	244	194	7	10
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	77	77	77	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	8	22	30	17	1	1
Restaurant	1	3	4	3	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	10	767	777	589	23	31
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	61	61	61	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	SOMO Village	**Organization:**	W-Trans
Project Location:	Rohnert Park	**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	Feb-19

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820/850	83	ksf	253	123	130
Restaurant	931	20	ksf	156	105	51
Cinema/Entertainment				0		
Residential	210/220/221	1,750	units	1084	676	408
Hotel				0		
All Other Land Uses[2]				162	76	86
Total				1655	980	675

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.11	3%	4%	1.07	3%	4%
Retail	1.21	3%	4%	1.18	3%	4%
Restaurant						
Cinema/Entertainment						
Residential	1.15	3%	4%	1.21	3%	4%
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					900	
Restaurant					900	
Cinema/Entertainment						
Residential		900	900			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		30	0	38	0
Restaurant	0	21		0	9	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	12	12	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,891	1,107	784
Internal Capture Percentage	13%	11%	16%
External Vehicle-Trips[3]	1,353	818	535
External Transit-Trips[4]	42	25	17
External Non-Motorized Trips[4]	56	34	22

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	22%	44%
Restaurant	40%	59%
Cinema/Entertainment	N/A	N/A
Residential	6%	5%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	SOMO Village
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.11	0	0	1.07	0	0
Retail	1.21	123	149	1.18	130	153
Restaurant	1.00	105	105	1.00	51	51
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.15	676	777	1.21	408	494
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	3		44	6	38	8
Restaurant	2	21		4	9	4
Cinema/Entertainment	0	0	0		0	0
Residential	20	164	82	0		15
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		12	2	0	31	0
Retail	0		30	0	357	0
Restaurant	0	75		0	124	0
Cinema/Entertainment	0	6	3		31	0
Residential	0	12	12	0		0
Hotel	0	3	5	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	33	116	149	89	3	5
Restaurant	42	63	105	63	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	47	730	777	590	22	29
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	76	76	76	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	68	85	153	67	3	3
Restaurant	30	21	51	21	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	24	470	494	361	14	19
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	86	86	86	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Appendix C

Queuing Calculations

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Queuing and Blocking Report
AM Peak Hour - Existing Conditions 04/08/2019

Intersection: 19: Petaluma Hill Rd & Valley House Dr

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	107	148	20	124	197	68	445	179
Average Queue (ft)	38	94	4	76	105	13	284	57
95th Queue (ft)	115	163	22	132	215	75	503	234
Link Distance (ft)	459		700	2572	2572		739	
Upstream Blk Time (%)							1	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)		130				80		275
Storage Blk Time (%)	0	3					42	
Queuing Penalty (veh)	0	1					36	

Intersection: 22: Petaluma Hill Rd & E Railroad Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	93	24	26	33
Average Queue (ft)	42	8	6	14
95th Queue (ft)	99	27	26	38
Link Distance (ft)	442	452	412	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 37

Queuing and Blocking Report
PM Peak Hour - Existing Conditions 04/08/2019

Intersection: 19: Petaluma Hill Rd & Valley House Dr

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	T	R
Maximum Queue (ft)	47	62	31	130	151	282	45
Average Queue (ft)	22	35	7	86	77	174	22
95th Queue (ft)	51	66	27	138	167	290	51
Link Distance (ft)	459		700	2572	2572	739	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		130					275
Storage Blk Time (%)						27	
Queuing Penalty (veh)						16	

Intersection: 22: Petaluma Hill Rd & E Railroad Ave

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	74	27	33	36	18
Average Queue (ft)	34	10	9	5	3
95th Queue (ft)	103	30	32	80	18
Link Distance (ft)	900	452	412	412	
Upstream Blk Time (%)				0	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)					100
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 16

Intersection: 19: Petaluma Hill Rd & Valley House Dr

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	68	270	22	218	243	43	518	204
Average Queue (ft)	37	182	5	134	143	11	346	72
95th Queue (ft)	73	310	22	223	258	54	577	279
Link Distance (ft)	976	976	706	1278	1278		739	
Upstream Blk Time (%)							1	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)						80		275
Storage Blk Time (%)						0	41	
Queuing Penalty (veh)						0	38	

Network Summary

Network wide Queuing Penalty: 38

Queuing and Blocking Report
AM Peak Hour - Existing plus Project Phase 1 07/31/2019

Intersection: 22: Petaluma Hill Rd & E Railroad Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	176	28	28	39
Average Queue (ft)	101	12	9	19
95th Queue (ft)	220	36	31	44
Link Distance (ft)	928	465	835	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Intersection: 19: Petaluma Hill Rd & Valley House Dr

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	T	R
Maximum Queue (ft)	76	114	30	295	163	339	56
Average Queue (ft)	41	66	11	204	80	217	28
95th Queue (ft)	85	125	36	330	164	352	61
Link Distance (ft)	979	979	706	1279	1279	739	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							275
Storage Blk Time (%)						32	
Queuing Penalty (veh)						25	

Network Summary

Network wide Queuing Penalty: 25

Queuing and Blocking Report
PM Peak Hour - Existing plus Project Phase 1 07/31/2019

Intersection: 22: Petaluma Hill Rd & E Railroad Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	152	43	38	14
Average Queue (ft)	93	15	13	3
95th Queue (ft)	210	45	40	17
Link Distance (ft)	442	466	786	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

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Queuing and Blocking Report
AM Peak Hour - Existing plus Project 04/24/2019

Intersection: 19: Petaluma Hill Rd & Valley House Dr

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	99	243	17	177	224	79	467	266
Average Queue (ft)	54	156	3	110	128	15	303	64
95th Queue (ft)	101	260	18	189	242	78	512	251
Link Distance (ft)	970	970	700	2572	2572		739	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)						80		275
Storage Blk Time (%)							39	
Queuing Penalty (veh)							39	

Intersection: 22: Petaluma Hill Rd & E Railroad Ave

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	304	24	41	2	37
Average Queue (ft)	193	9	18	0	13
95th Queue (ft)	511	29	45	4	40
Link Distance (ft)	900	452	412	412	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					100
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 39

Queuing and Blocking Report
PM Peak Hour - Existing plus Project 04/08/2019

Intersection: 19: Petaluma Hill Rd & Valley House Dr

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	T	R
Maximum Queue (ft)	84	100	30	253	167	326	85
Average Queue (ft)	46	52	9	166	85	200	39
95th Queue (ft)	88	103	33	261	171	334	138
Link Distance (ft)	973		700	2572	2572	739	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		130					275
Storage Blk Time (%)	0	0				28	
Queuing Penalty (veh)	0	0				30	

Intersection: 22: Petaluma Hill Rd & E Railroad Ave

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	R
Maximum Queue (ft)	153	24	89	39	10	6
Average Queue (ft)	86	6	35	6	2	1
95th Queue (ft)	212	26	113	85	15	8
Link Distance (ft)	442	452	412	412		
Upstream Blk Time (%)			0	0		
Queuing Penalty (veh)			0	0		
Storage Bay Dist (ft)					100	50
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 30

Queuing and Blocking Report
AM Peak Hour - Future No Project 04/24/2019

Intersection: 19: Petaluma Hill Rd & Valley House Dr

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	116	233	17	229	279	117	731	395
Average Queue (ft)	63	139	2	157	181	23	615	196
95th Queue (ft)	121	238	16	253	314	113	906	496
Link Distance (ft)	942	942	700	2572	2572		739	
Upstream Blk Time (%)							27	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)						80		275
Storage Blk Time (%)							54	
Queuing Penalty (veh)							51	

Intersection: 22: Petaluma Hill Rd & E Railroad Ave

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	378	22	66	41	45
Average Queue (ft)	237	7	15	11	23
95th Queue (ft)	439	24	96	122	52
Link Distance (ft)	900	452	412	412	
Upstream Blk Time (%)			0	0	
Queuing Penalty (veh)			0	0	
Storage Bay Dist (ft)					100
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 51

Queuing and Blocking Report
PM Peak Hour - Future No Project 04/24/2019

Intersection: 19: Petaluma Hill Rd & Valley House Dr

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	T	R
Maximum Queue (ft)	64	169	31	288	265	784	395
Average Queue (ft)	28	107	10	194	144	761	199
95th Queue (ft)	63	176	33	323	285	783	509
Link Distance (ft)	942	942	700	2572	2572	739	
Upstream Blk Time (%)						65	
Queuing Penalty (veh)						0	
Storage Bay Dist (ft)							275
Storage Blk Time (%)						52	
Queuing Penalty (veh)						38	

Intersection: 22: Petaluma Hill Rd & E Railroad Ave

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	R
Maximum Queue (ft)	187	39	106	77	22	4
Average Queue (ft)	103	14	24	11	5	1
95th Queue (ft)	204	45	134	122	23	6
Link Distance (ft)	900	452	412	412		
Upstream Blk Time (%)			0	0		
Queuing Penalty (veh)			0	0		
Storage Bay Dist (ft)					100	50
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 38

Intersection: 19: Petaluma Hill Rd & Valley House Dr

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	115	217	14	257	293	82	761	395
Average Queue (ft)	62	148	3	180	179	15	659	231
95th Queue (ft)	105	230	18	303	320	94	924	535
Link Distance (ft)	970	970	700	2572	2572		739	
Upstream Blk Time (%)							34	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)						80		275
Storage Blk Time (%)							57	
Queuing Penalty (veh)							58	

Queuing and Blocking Report
AM Peak Hour - Future plus Project Phase 1 07/31/2019

Intersection: 22: Petaluma Hill Rd & E Railroad Ave

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	110	50	26	40	536	121	374	54
Average Queue (ft)	69	24	10	17	311	50	253	15
95th Queue (ft)	127	63	32	50	611	138	468	64
Link Distance (ft)	1853	1853	466	2249	2249		2832	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)						100		50
Storage Blk Time (%)						1	18	0
Queuing Penalty (veh)						9	19	1

Network Summary

Network wide Queuing Penalty: 29

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Intersection: 19: Petaluma Hill Rd & Valley House Dr

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	T	R
Maximum Queue (ft)	60	163	29	360	246	777	394
Average Queue (ft)	32	115	10	276	150	747	194
95th Queue (ft)	67	189	34	469	309	861	496
Link Distance (ft)	970	970	700	2572	2572	739	
Upstream Blk Time (%)						63	
Queuing Penalty (veh)						0	
Storage Bay Dist (ft)							275
Storage Blk Time (%)						53	
Queuing Penalty (veh)						49	

Queuing and Blocking Report
PM Peak Hour - Future plus Project Phase 1 07/31/2019

Intersection: 22: Petaluma Hill Rd & E Railroad Ave

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	87	44	26	129	394	49	869	80
Average Queue (ft)	54	22	9	56	225	10	626	17
95th Queue (ft)	101	59	29	187	558	64	1192	87
Link Distance (ft)	2800	2800	466	2017	2017		2613	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)						100		50
Storage Blk Time (%)							22	0
Queuing Penalty (veh)							15	1

Network Summary

Network wide Queuing Penalty: 17

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Queuing and Blocking Report
AM Peak Hour - Future plus Project 04/24/2019

Intersection: 19: Petaluma Hill Rd & Valley House Dr

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	120	285	14	249	344	67	752	395
Average Queue (ft)	76	166	3	180	203	14	680	210
95th Queue (ft)	138	294	17	303	380	86	921	511
Link Distance (ft)	970	970	700	2572	2572		739	
Upstream Blk Time (%)							43	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)						80		275
Storage Blk Time (%)						0	57	
Queuing Penalty (veh)						0	63	

Intersection: 22: Petaluma Hill Rd & E Railroad Ave

Movement	EB	B21	WB	NB	NB	SB	SB	SB
Directions Served	LTR	T	LTR	L	TR	L	T	R
Maximum Queue (ft)	836	83	25	81	40	39	10	2
Average Queue (ft)	568	18	9	26	6	20	1	0
95th Queue (ft)	1038	107	30	104	89	47	19	4
Link Distance (ft)	900	390	452	412	412		2572	
Upstream Blk Time (%)	16			0	0			
Queuing Penalty (veh)	0			0	0			
Storage Bay Dist (ft)						100		50
Storage Blk Time (%)								
Queuing Penalty (veh)								

Network Summary

Network wide Queuing Penalty: 63

Queuing and Blocking Report
AM Peak Hour - Future plus Project WITH SIGNAL 05/14/2019

Intersection: 22: Petaluma Hill Rd & E Railroad Ave

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	127	89	34	50	550	125	564	70
Average Queue (ft)	75	56	13	27	345	61	392	23
95th Queue (ft)	142	104	39	59	677	162	710	99
Link Distance (ft)	1853	1853	466	2249	2249		2832	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)						100		50
Storage Blk Time (%)						1	22	0
Queuing Penalty (veh)						14	23	1

Network Summary

Network wide Queuing Penalty: 38

Queuing and Blocking Report
PM Peak Hour - Future plus Project 04/24/2019

Intersection: 19: Petaluma Hill Rd & Valley House Dr

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	T	R
Maximum Queue (ft)	73	176	29	459	242	783	364
Average Queue (ft)	43	117	10	342	135	762	215
95th Queue (ft)	86	194	34	617	272	785	518
Link Distance (ft)	970	970	700	2572	2572	739	
Upstream Blk Time (%)						65	
Queuing Penalty (veh)						0	
Storage Bay Dist (ft)							275
Storage Blk Time (%)						54	
Queuing Penalty (veh)						64	

Intersection: 22: Petaluma Hill Rd & E Railroad Ave

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	R
Maximum Queue (ft)	361	22	149	115	8	4
Average Queue (ft)	264	9	56	23	3	1
95th Queue (ft)	515	30	205	180	17	7
Link Distance (ft)	900	452	412	412		
Upstream Blk Time (%)			0	0		
Queuing Penalty (veh)			0	0		
Storage Bay Dist (ft)					100	50
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 64

Queuing and Blocking Report
PM Peak Hour - Future plus Project WITH SIGNAL 05/14/2019

Intersection: 22: Petaluma Hill Rd & E Railroad Ave

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	T	R
Maximum Queue (ft)	88	69	29	129	327	53	1051	80
Average Queue (ft)	52	40	13	80	191	14	708	18
95th Queue (ft)	99	87	40	145	415	76	1268	89
Link Distance (ft)	2800	2800	466	2017	2017		2613	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)						100		50
Storage Blk Time (%)							24	0
Queuing Penalty (veh)							17	2

Network Summary

Network wide Queuing Penalty: 18

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