Appendix G: Traffic Impact Study

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Traffic Impact Study for The Oaks at Foss Creek

Prepared for the City of Healdsburg

Submitted by
W-Trans

November 3, 2016

TRAFFIC ENGINEERING
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Table of Contents

Executive Summary 1

Introduction 2

Transportation Setting 4

Capacity Analysis 8

Alternative Modes 26

Access and Circulation 27

Conclusions and Recommendations 29

Study Participants and References 31

Figures

1. Study Area and Existing Lane Configurations 3
2. Existing Traffic Volumes 11
3. Location of Baseline Projects 12
4. Baseline Traffic Volumes 15
5. Future Lane Configurations 17
6. Future Traffic Volumes 18
7. Site Plan 20
8. Project Traffic Volumes 22

Tables

1. Collision Rates at the Study Intersections 5
2. Bicycle Facility Summary 7
3. Intersection Level of Service Criteria 8
4. Existing Peak Hour Intersection Levels of Service 10
5. Baseline Trip Generation Summary 13
6. Baseline Trip Distribution Assumptions 13
7. Baseline Peak Hour Intersection Levels of Service 14
8. Future Peak Hour Intersection Levels of Service 19
9. Trip Generation Summary 19
10. Trip Distribution Assumptions 21
11. Existing and Existing plus Project Peak Hour Intersection Levels of Service 21
12. Baseline and Baseline plus Project Peak Hour Intersection Levels of Service 23
13. Future and Future plus Project Peak Hour Levels of Service 24

Appendices

A. Collision Rate Calculations
B. City of Healdsburg Bicycle and Pedestrian Master Plan Map
C. Intersection Level of Service Calculations
D. Proportional Share Calculations
E. Access Analysis

Executive Summary

The proposed project consists of developing 44 single family dwellings on a site currently zoned for industrial uses and occupied by three homes. The project would be expected to add 390 net new trips to the street system on a daily basis, including 31 during the morning peak hour and 41 during the evening peak hour compared to the existing uses.

The study area included the intersections providing access to US 101 and Healdsburg Avenue, and all of the study intersections are currently operating acceptably. Though the intersection at the US 101 South Ramps is currently operating at LOS E overall during the evening peak hour, this is considered acceptable under the standards applied. Upon adding traffic from other pending and approved project to the existing volumes, US 101 South Ramps/Dry Creek Road is expected to operate at LOS F during both peak hours with or without the project. The City and County are currently in the process of designing improvements to add stop signs and turn lanes at this location to achieve acceptable operation with the addition of traffic from pending and approved projects. The proposed project would be apportioned a share of the cost of these improvements that are needed to accommodate all of the currently proposed and pending development. To mitigate its share of this impact, the project applicant would need to pay a proportional share of 18.6 percent of the cost for this short-term project.

The City has identified the need to install traffic signals at the Dry Creek Road interchange to accommodate traffic associated with additional future development. Further, to achieve acceptable operation under future volumes it is suggested that the lane configuration and phasing for northbound Grove Street at Dry Creek Road be modified so that there is a dedicated left-turn lane and protected left-turn phasing. Since the improvements at the interchange are included in the City's traffic mitigation fee, the project's impacts are addressed through payment of that fee; however, the proposed changes at Dry Creek Road/Grove Street are not currently funded. The project's proportional share of this additional improvement is 3.1 percent. With these changes as well as the signalization discussed above, all of the study intersections are projected to operate acceptably at LOS D or better under future volumes.

The project site is adequately served by bicycle facilities and transit routes, but does not have adequate pedestrian facilities existing or planned. To provide connectivity to the existing system the project should provide sidewalk along Chiquita Road connecting to Grove Street.

Given the low volumes on Chiquita Road as well as travel patterns for site residents a left-turn lane in not warranted or recommended on Chiquita Road. Based on these same distribution assumptions, however, sight distance to the west is critical as drivers will typically make a left turn out of the site. Sight lines are currently limited by the neighbor's fence to the east. The trees should be trimmed and outbound drivers placed as far to the east as possible by striping a centerline to achieve adequate visibility.

Introduction

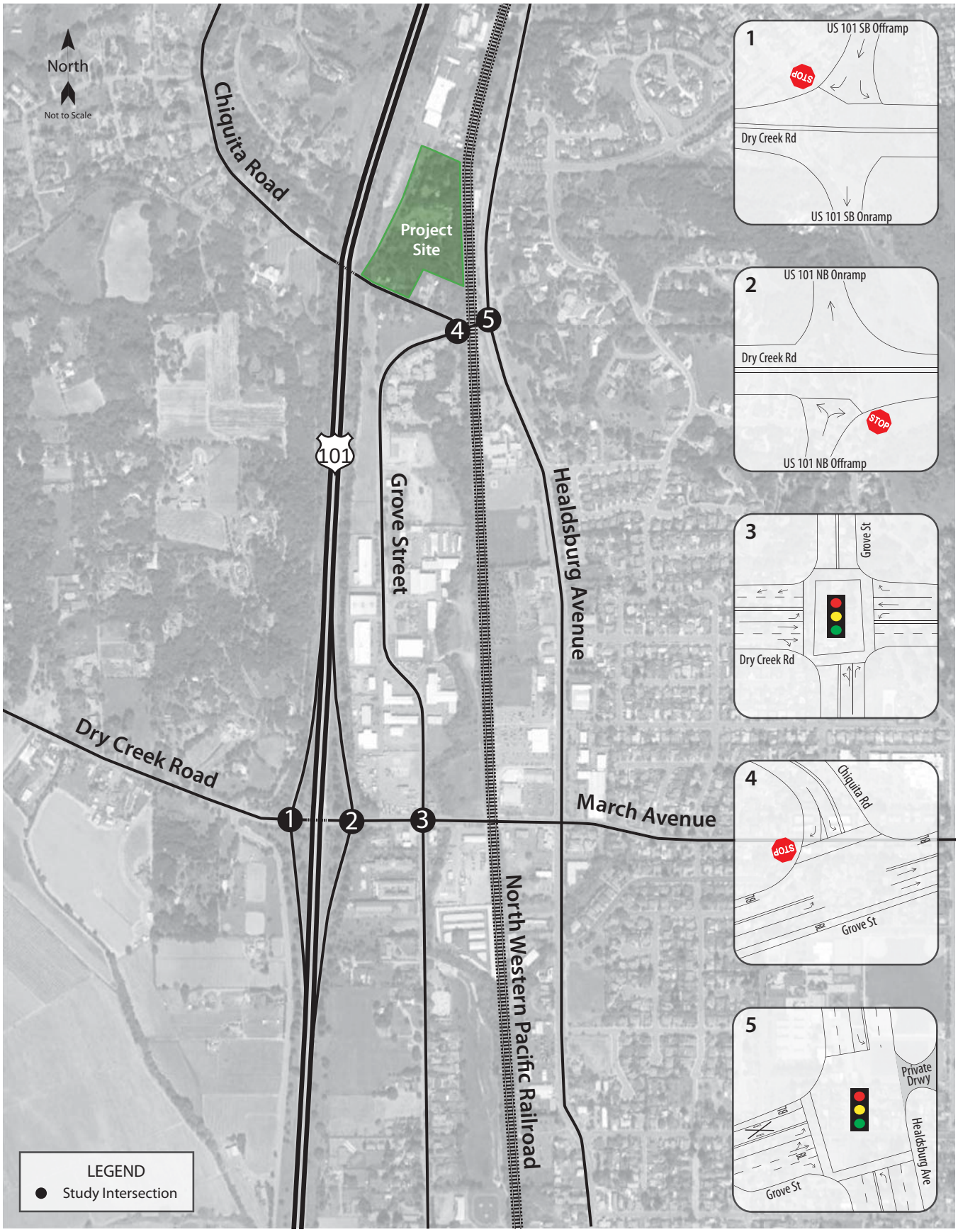
This report presents an analysis of the potential traffic impacts that would be associated with the proposed development of 44 single family homes to be located at 157 Chiquita Road in the City of Healdsburg. The project would also include a General Plan amendment to change the designated land use from industrial to low density residential for 157 Chiquita Road. The traffic study was completed in accordance with the criteria established by the City of Healdsburg, 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 in order 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 project as proposed includes 44 single family homes to be constructed on a site zoned for industrial uses that currently is developed with three single family dwellings. The project site is shown in Figure 1.



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Traffic Impact Study for The Oaks at Foss Creek

Figure 1 – Study Area and Existing Lane Configurations

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Transportation Setting

Operational Analysis

Study Area and Periods

The study area consists of the section of Chiquita Road connecting to the project access point as well as the following intersections.

1. US 101 South Ramps/Dry Creek Road
2. US 101 North Ramps/Dry Creek Road
3. Grove Street/Dry Creek Road
4. Grove Street/Chiquita Road
5. Grove Street/Healdsburg Avenue

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.

Study Intersections

US 101 South Ramps/Dry Creek Road is a four-legged intersection. The north leg is the US-101 southbound off-ramp and south leg is the on-ramp. The north leg is stop-controlled. There are no crosswalks at the intersection.

US 101 North Ramps/Dry Creek Road is a four-legged intersection where the south leg is the off-ramp for US 101 North. The south leg is stop-controlled. The north leg is the on-ramp to US 101 north.

Dry Creek Road west of US 101 is under the jurisdiction of the County of Sonoma, and the ramps and interchange are under Caltrans jurisdiction, so the US 101 South Ramps intersection is actually completely outside the City of Healdsburg. Only the east Dry Creek Road leg of the US 101 North Ramps intersection is under the City of Healdsburg's jurisdiction; the remaining three-quarters of the intersection belong to Caltrans. However, despite the intersections being predominantly outside their jurisdiction, the City of Healdsburg has been collecting funds with the intent of signalizing both of the interchange intersections to address current and anticipated future deficient operation.

Grove Street/Dry Creek Road is a four-legged signalized intersection. Grove Street, which runs north-south, has permitted left turns and Dry Creek Road, which runs east-west, has protected left turns. There are crosswalks and pedestrian phasing on each leg.

Grove Street/Chiquita Road is a tee-intersection where the side approach, Chiquita Road, is stop-controlled. There is a crosswalk on the Chiquita Road approach.

Grove Street/Healdsburg Avenue is a four legged intersection where the east leg is a private driveway. The east and west approaches are split-phased and the Healdsburg Avenue north and south approaches have protected left turns. There are crosswalks and pedestrian phasing on the south and west legs of the intersection. There is also pedestrian phasing across the private driveway, the east leg.

The locations of the study intersections and the existing lane configurations and controls are shown in Figure 1.

Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is January 1, 2011 through December 31, 2015.

As presented in Table 1, the calculated collision rates for the study intersections were compared to *average collision rates for similar facilities statewide, as indicated in 2012* Collision Data on California State Highways, California Department of Transportation. Three of the five intersections have slightly higher collision rates than the state average. Two of these are currently stop-controlled with plans to be signalized the in the future. The collision rate calculations are provided in Appendix A.

Table 1 – Collision Rates at the Study Intersections

Study Intersection	Number of Collisions (2011-2015)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. US 101 S Ramps/Dry Creek Rd	6	**0.28**	0.15
2. US 101 N Ramps/Dry Creek Rd	8	**0.26**	0.15
3. Grove St/Dry Creek Rd	19	**0.56**	0.27
4. Grove St/Chiquita Rd	0	0.0	0.18
5. Grove St/Healdsburg Ave	3	0.18	0.27

Note: c/mve = collisions per million vehicles entering

The US 101 Ramps on Dry Creek Road reported slightly higher collision rates than the state average. Upon reviewing the collision records, half of the collisions at the US 101 Southbound ramps at Dry Creek Road were broadside collisions and for more than half of the incidents, the primary cause of the collisions was due to right of way violations. At the intersection of US 101 Northbound Ramps/Dry Creek Road, the types and causes of each collision were more balanced. The collision report indicated approximately the same number of sideswipe, rear end, and broadside collisions with right-of-way violation as the most common primary collision factor; followed closely by driving under the influence and unsafe speeds. Installation of the planned signals at these two intersections would be expected to reduce the number of collisions.

The intersection of Grove Street and Dry Creek Road also reported a higher collision rate than the statewide average. Broadsides were the most common type of collision with traffic signals as the most common primary collision factor followed by right of way violations. Of the 19 collisions reported at this location, nine involved an eastbound vehicle. The high involvement of this movement may be due to the fact that the speed limit reduces at the entrance to the city and there is a heavily used commercial driveway just west of the intersection where several of the collisions appeared to occur. It is noted that this location has experienced ongoing problems with detection, often resulting in very long waits despite there being no other vehicles in the intersection. This issue has been resolved by City staff of late, and this is reflected in a collision history that dropped from there being an average of six crashes a year for the three-year period of 2011-2013, but only one crash each in 2014 and 2015. Based on the substantial reduction in annual crashes for the final two years of the study period, it appears that there is not an ongoing safety concern at this time.

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, crosswalks, pedestrian signals, and curb ramps provide access for pedestrians in the vicinity of the proposed project site; however, sidewalk gaps, obstacles, and barriers can be found along some or all of the roadways connecting to the project site. Existing gaps and obstacles along the connecting roadways impact convenient and continuous access for pedestrians and present safety concerns in those locations where appropriate pedestrian infrastructure would address potential conflict points.

- **Dry Creek Road** – Intermittent sidewalk coverage is provided on Dry Creek Road with significant gaps on one or both sides of the street between US 101 and Healdsburg Avenue. Sidewalks are provided along most developed property frontages, but are missing along undeveloped and even some developed parcels. Curb ramps and crosswalks at side street approaches are intermittent, non-existent, or not compliant with current ADA standards. High volumes of traffic, intersection turning movements, interchange movements, etc. are in conflict with pedestrian movements. Lighting is provided by overhead street lights.

- **Grove Street** – Continuous sidewalks are provided on the east/south side of Grove Street between Dry Creek Road and Healdsburg Avenue. Sidewalks are not provided on the west/north side of the street except along the frontage of the new housing development currently under construction at the corner of Grove Street/Chiquita Road. The sidewalk will be extended along the west side south as far as Grove Court, where a crosswalk with a rectangular rapid flashing beacon is to be installed.

- **Chiquita Road** – No sidewalks currently exist on Chiquita Road, though they will be installed on the south side along the frontage of the Chiquita Grove Subdivision, from US 101 to Grove Street. This under-construction subdivision is substantially changing the character of this section of Chiquita Road from a rural country lane to a standard City street.

Bicycle Facilities

The *Highway Design Manual*, California Department of Transportation (Caltrans), 2012, 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.

Guidance for Class IV Bikeways is provided in *Design Information Bulletin Number 89: Class IV Bikeway Guidance (Separated Bikeways/Cycle Tracks)*, Caltrans, 2015.

- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

In the project area, Class II bike lanes exist on Grove Street from north of Dry Creek Road to Healdsburg Avenue. Bicyclists ride in the roadway and/or on sidewalks along all other streets within the project study area. Table 2 summarizes the existing and planned bicycle facilities in the project vicinity, as contained in the *City of Healdsburg Bicycle and Pedestrian Master Plan*, the map from the Master Plan is in Appendix B.

Table 2 – Bicycle Facility Summary

Status Facility	Class	Length (miles)	Begin Point	End Point
Existing				
Grove Street	II	0.60	North of Dry Creek Road	Healdsburg Avenue
Dry Creek Road	III	0.18	Grove Street	Healdsburg Avenue
March Avenue	II	0.47	Healdsburg Avenue	University Avenue
Healdsburg Avenue	III	0.82	Dry Creek Road	Parkland Farms Boulevard
Planned				
Foss Creek Pathway	I	2.45	City Hall	City Limits
Grove Street	II	0.12	Dry Creek Road	North of Dry Creek Road
Grove Street	III	1.0	Vine Street	Dry Creek Road
Healdsburg Avenue	II	0.79	Parkland Farms Boulevard	City Limits

Source: *City of Healdsburg Bicycle and Pedestrian Master Plan*, Sonoma County Transportation Authority, 2008

Transit Facilities

Sonoma County Transit (SCT) provides fixed route bus service in Healdsburg. SCT Route 60 provides service to destinations throughout the City, connecting to Cloverdale to the north and Santa Rosa to the south and running approximately hourly from 7:00 a.m. to 10:00 p.m. The route travels north on Healdsburg Avenue and south on Grove Street, and stops near the intersection of Grove Street and Healdsburg Avenue going in both directions. Weekend service runs from 10:00 a.m. to 9:00 p.m. with headways of one-and-one-half to two hours.

Healdsburg Transit provides loop service at approximately one-hour headways on Monday through Saturday from 9:00 a.m. to 4:00 p.m., with stops on Grove Street and Healdsburg Avenue near the project site.

Two bicycles can be carried on most SCT buses. Bike rack space is on a first come, first served basis. Additional bicycles are allowed on SCT buses at the discretion of the driver.

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. SCT Paratransit is designed to serve the needs of individuals with disabilities within Healdsburg.

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, or those which are unsignalized and have one or two approaches stop controlled, 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.

The study intersections that are currently controlled by a traffic signal, or may be 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 or not the signals are coordinated, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using optimized signal timing.

The ranges of delay associated with the various levels of service are indicated in Table 3.

Table 3 – Intersection Level of Service Criteria

LOS	Two-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. 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 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 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 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to 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 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 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 five study intersections include three that are under the City's jurisdiction, while the two at the US 101 interchange are owned, operated and maintained by Caltrans. While the Caltrans standards are applicable to the interchange intersections, it is noted that Caltrans follows standards as set by local jurisdictions for intersections that are critical to their circulation system. The Dry Creek Road interchange was therefore considered under both standards, though the significance of impacts was determined based on the City's standard.

City of Healdsburg

The Level of Service (LOS) standard for Healdsburg is contained in the *Healdsburg 2030 General Plan Policy Document*, and reads as follows:

> *The City shall strive to maintain Level of Service D operation during periods of peak traffic flow at critical intersections, and Level of Service C operation at all other times. These standards shall apply only to intersections of an arterial street with either another arterial or a collector street and intersections of two collector streets. Further, LOS F operation shall be acceptable for a stop-controlled approach to a through street provided the higher levels of delay affect 25 vehicles per hour or less. Attainment of these Levels of Service shall be consistent with the financial resources available and the limits of technical feasibility.*

In the *Healdsburg 2030 General Plan Update Environmental Impact Report*, 2009, the following additional guidance is provided.

> *An impact on intersection operation would be considered significant if:*
>
> a) *The addition of traffic generated by a project degrades the peak-period LOS of an all-way stop-controlled or signalized intersection from A, B, C, or D (without the project) to E or F (with the project);*
>
> b) *The addition of Project generated traffic degrades the overall operation on a minor, stop-controlled approach to an unsignalized intersection from LOS A, B, C, D, or E (without the project) to LOS F (with the project) and the affected approach or movement serves 25 or more vehicles per hour; or*
>
> c) *The LOS (without project) is E or F and Project-generated traffic would increase the peak period average vehicle delay by 5 seconds or more.*

Caltrans

Caltrans indicates that they endeavor to maintain operation at the transition from LOS C to LOS D. Based on previous discussions with Caltrans staff, it is understood that the standard is to be applied to the overall average intersection delay and *not* that associated with any single movement or approach. Under this approach, if one movement experiences very high delay and also has moderate to high traffic volumes, the overall delay and level of service should reflect the critical nature of the condition. However, if one movement is expected to experience high delay, but has very low traffic volumes, the overall intersection operation will likely still meet Caltrans standards.

Where intersections are integral to a local jurisdictions transportation system, Caltrans often accepts the operational standard applied by the local agency, in this case, the City of Healdsburg.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing lane configurations and traffic volumes during the a.m. and p.m. peak periods. Some of the counts were obtained

specifically for this study in June 2016 before local schools dismissed for the summer, while others were taken in July 2014 when schools were not in session, but the City's tourist industry was flourishing. This condition does not include project-generated traffic volumes. Since vehicles currently use the US 101 off-ramps as if there were two approach lanes, for purposes of evaluating operation it was assumed that the ramps have two approach lanes.

Intersection Levels of Service

Under existing conditions, the intersections are operating acceptably under applicable City standards though the operation at Dry Creek Road/US 101 South is considered unacceptable under Caltrans Policy. A summary of the intersection level of service calculations is contained in Table 4, the existing traffic volumes are shown in Figure 2, and copies of the Level of Service calculations are provided in Appendix C.

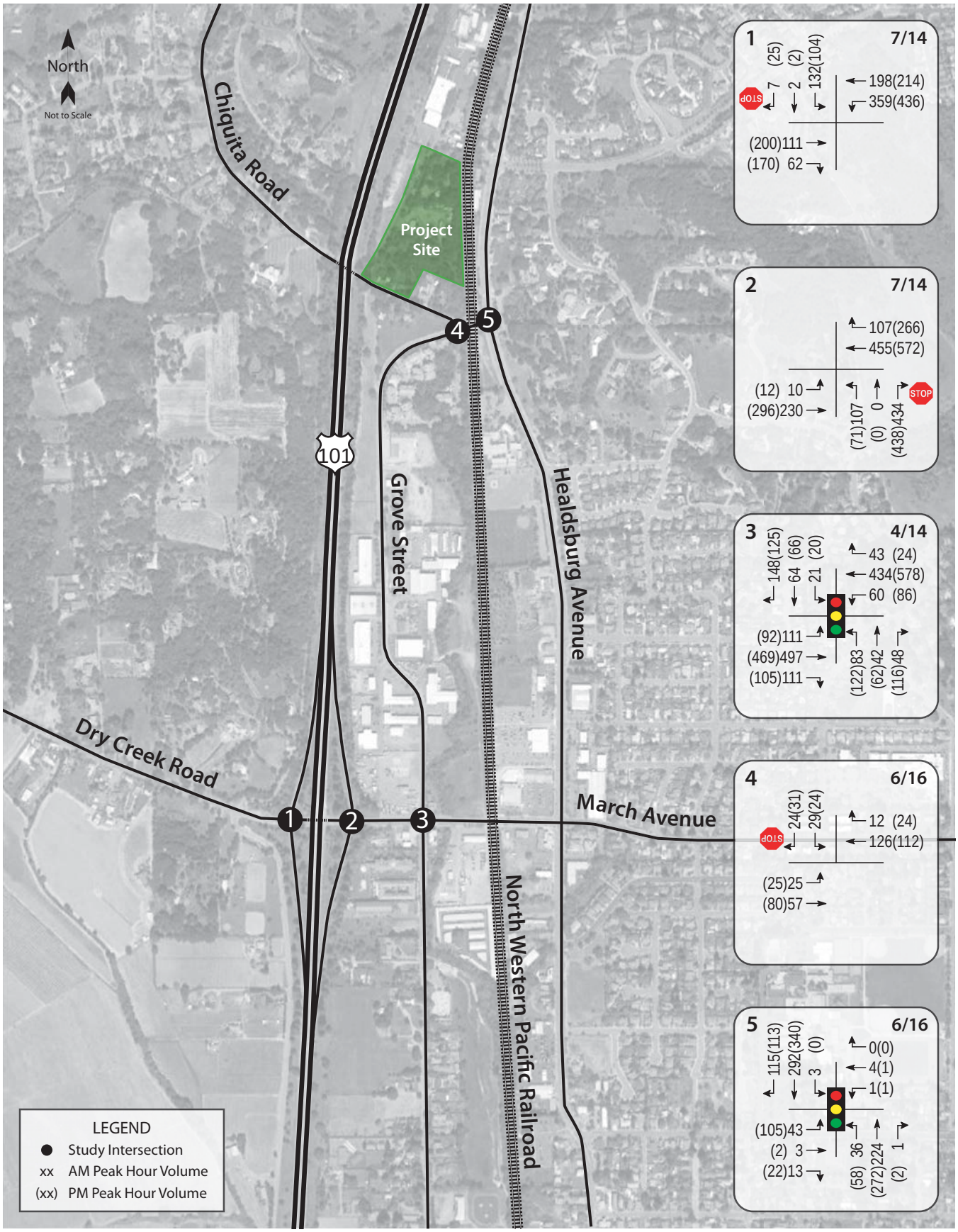
Table 4 – Existing Peak Hour Intersection Levels of Service

Study Intersection	**AM Peak**		**PM Peak**	
Approach	**Delay**	**LOS**	**Delay**	**LOS**
1. US 101 S Ramps/Dry Creek Rd	31.5	D	37.8	E
Southbound Approach	**	*F*	**	*F*
2. US 101 N Ramps/Dry Creek Rd	7.6	A	6.4	A
Northbound Approach	*18.7*	*B*	*20.6*	*C*
3. Grove St/Dry Creek Rd	23.7	C	29.1	C
4. Grove St/Chiquita Rd	2.6	A	2.4	A
Southbound Approach	*9.8*	*A*	*9.7*	*A*
5. Grove St/Healdsburg Ave	8.6	A	11.3	B

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;* ** = delay greater than 120 seconds;

Baseline Conditions

Baseline operating conditions were determined with traffic from nearby projects that have been approved or are pending added to the existing volumes. The nearby projects included in the analysis are the residential projects of Chiquita Grove, the Midtowne project, the 110 Dry Creek Road project, 1201 Grove Street; and Farmstand; together with the commercial project proposed at 255 Dry Creek Road. The locations of the Baseline scenario projects are shown in Figure 3. Trip generation and distribution assumptions for these projects are summarized in Table 5 and Table 6, respectively.



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Traffic Impact Study for The Oaks at Foss Creek

Figure 2 – Existing Traffic Volumes

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Traffic Impact Study for The Oaks at Foss Creek

Figure 3 – Location of Baseline Projects

Table 5 – Baseline Trip Generation Summary											
Land Use	**Units**	**Daily**		**AM Peak Hour**				**PM Peak Hour**			
		Rate	**Trips**	**Rate**	**Trips**	**In**	**Out**	**Rate**	**Trips**	**In**	**Out**
Chiquita Grove											
Single Family Homes	14 du	9.52	133	0.75	11	3	8	1.00	14	9	5
Condo/Townhome	14 du	5.81	81	0.44	6	1	5	0.52	7	5	2
			214		17	4	13		21	14	7
Midtowne											
Single Family Homes	34 du	9.57	325	0.75	26	7	19	1.01	34	21	13
Farmstand											
Single Family Homes	30 du	9.57	286	0.75	23	6	17	1.00	30	19	11
Specialty Retail*	12 ksf	44.32	532	0.96	12	7	5	2.71	33	14	19
			818		35	13	22		63	33	30
110 Dry Creek Road											
Light Industrial	8.26 ksf	6.97	-58	0.92	-8	-7	-1	0.97	-8	-1	-7
Hotel	122 rms	8.17	997	0.53	65	38	27	0.60	73	37	36
Apartment	42 du	6.65	279	0.51	21	4	17	0.62	26	17	9
			1218		78	35	43		91	53	38
255 Dry Creek Rd											
Specialty Retail*	8.995 ksf	44.32	399	3.99	36	22	14	2.71	24	11	13
1201 Grove Street											
Single Family Homes	25 du	9.57	239	0.75	19	7	12	1.00	25	21	4

Note: ksf = 1,000 square feet; rms = rooms; du = dwelling unit

Table 6 – Baseline Trip Distribution Assumptions								
Route To/From	**Chiquita Grove**	**Mid-towne**	**Farm-stand**	**255 Dry Creek**	**1201 Grove St**	**110 Dry Creek Rd-Indust.**	**110 Dry Creek Rd-Resident**	**110 Dry Creek Rd-Hotel**
US 101 North	-	15%	15%	10%	15%	25%	15%	10%
US 101 South	40%	15%	15%	25%	15%	75%	40%	25%
West on Dry Creek Rd	5%	5%	5%	5%	5%	-	5%	25%
South on Grove St	20%	-	40%	20%	40%	-	10%	10%
South on Healdsburg Ave	10%	40%	-	10%	-	-	20%	20%
East on March Ave	10%	10%	10%	15%	10%	-	10%	-
North on Healdsburg Ave	15%	15%	15%	15%	15%	-	-	10%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Under conditions with traffic from these projects added to existing volumes, four of the five intersections are expected to continue operating at the same service level as with existing volumes. The intersection of US 101 South Ramps/Dry Creek Road would be expected to operate at a deficient level during both the a.m. and p.m. peak hours. These results are summarized in Table 7, and Baseline volumes are shown in Figure 4.

Table 7 – Baseline Peak Hour Intersection Levels of Service

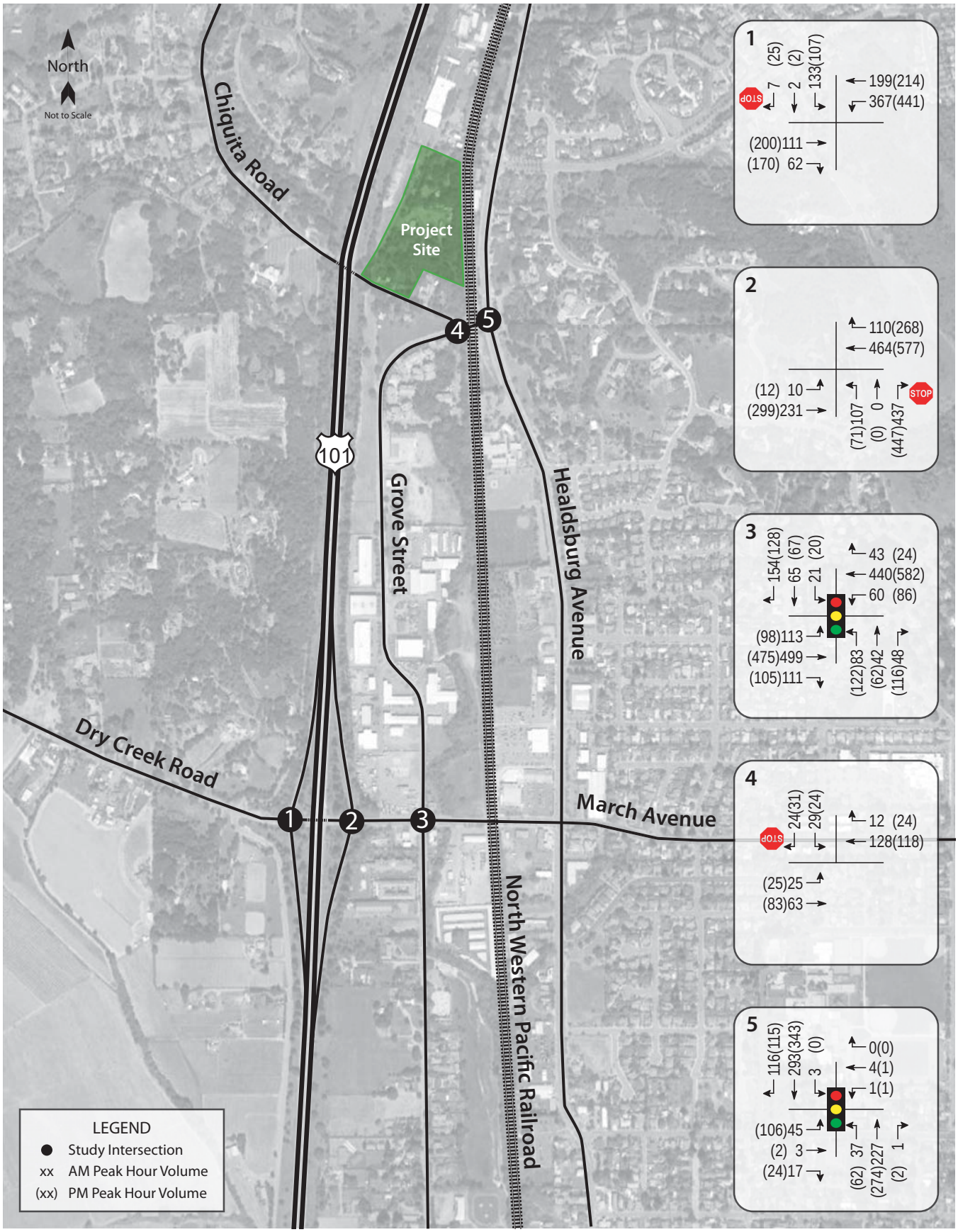
Study Intersection		**AM Peak**		**PM Peak**	
	Approach	**Delay**	**LOS**	**Delay**	**LOS**
1.	US 101 S Ramps/Dry Creek Rd	**51.5**	**F**	**66.9**	**F**
	Southbound Approach	**	***F***	**	***F***
	Improvement: AWSC, WB left-turn lane	12.3	B	14.1	B
2.	US 101 N Ramps/Dry Creek Rd	8.3	A	7.8	A
	Northbound Approach	*21.1*	*C*	*25.1*	*C*
	Improvement: EB left-turn lane	8.3	A	7.8	A
	Northbound Approach	*21.1*	*C*	*25.1*	*D*
3.	Grove St/Dry Creek Rd	29.6	C	34.5	C
4.	Grove St/Chiquita Rd	2.5	A	2.2	A
	Southbound Approach	*9.9*	*A*	*9.9*	*A*
5.	Grove St/Healdsburg Ave	8.9	A	11.6	B

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;* ** = delay greater than 120 seconds; **Bold** text = deficient operation; Shaded cells = conditions with recommended improvements; AWSC = All-way stop-control

In the *Dry Creek Intersection Control Traffic Study, Healdsburg, CA Revised Draft Memorandum (2016)* by Kimley-Horn, several alternative improvements at the Dry Creek Road interchange were considered as short-term solutions to the impending deficient operation. Scenario #3 was selected as the preferred alternative, and the description of this option as contained in the study is provided below:

> *Install all-way stop-control (AWSC) at the intersection of Dry Creek Road/US 101 South Ramps and restripe the westbound approach to be a westbound left-turn lane for 125 feet and a westbound through lane. The eastbound approach at the intersection of Dry Creek Road/US 101 north ramps will be restriped to be an eastbound through lane and an eastbound left turn lane for 50 feet. This assumes no change to the intersection control at the Dry Creek Road/US 101 North Ramps and no change to the intersection of Dry Creek Road/Grove Street.*

City staff has indicated that work is proceeding to install these improvements in the Spring of 2017. It is further anticipated that the cost of these improvements will be borne by the projects currently in the approval process that cause the need for these improvements through proportional share payments. With all-way stop-controls, as detailed above and assuming the south and north ramps would continue to operate as two-lane approaches, under the projected Baseline volumes the intersection of Dry Creek Road/US 101 South Ramps would be expected to operate at an acceptable service level during both peak periods. Though not operating unacceptably without improvements, the provision of a left-turn pocket as part of the planned improvements would provide some improvement to operation at Dry Creek Road/US 101 North Ramps.



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Traffic Impact Study for The Oaks at Foss Creek

Figure 4 – Baseline Traffic Volumes

Future Conditions

Applicable Policies

Policy T-A-16 of the *Healdsburg 2030 General Plan* indicates that the City shall work with Caltrans, Sonoma County, and the Sonoma County Transportation Authority (SCTA) to plan and implement improvements to the US 101 Interchange at Dry Creek Road. As indicated in Table IV.O-6 of the DEIR, this would include signalization at both ramp intersections. This policy further requires the City to work with Caltrans and SCTA to establish a formula for sharing costs in order to be able to implement improvements identified as being needed to achieve acceptable operation.

Policy T-5 requires the City to pursue funding for signalization of the Dry Creek ramps and associated improvements. Additional details relative to Policy T-5 indicate that the Dry Creek improvements are included in the City's Capital Improvement Program. Potential funding sources identified in the EIR prepared in support of the 2030 General Plan include the City's Streets and Traffic Controls Infrastructure Capacity Charges. However, given that there was uncertainty over obtaining Caltrans approval for changes to their facility, the impact at the Dry Creek Interchange was classified as significant and unavoidable in the General Plan EIR.

Future Volumes and Geometrics

Where available, segment volumes for the horizon year of 2040 were obtained from the County's gravity demand model and translated to turning movement volumes at most of the study intersections using a combination of the "Furness" method and factoring, depending on how the model was configured at each intersection. The Furness method is an iterative process that employs existing turn movement data, existing link volumes and future link volumes to project likely turning future movement volumes at intersections.

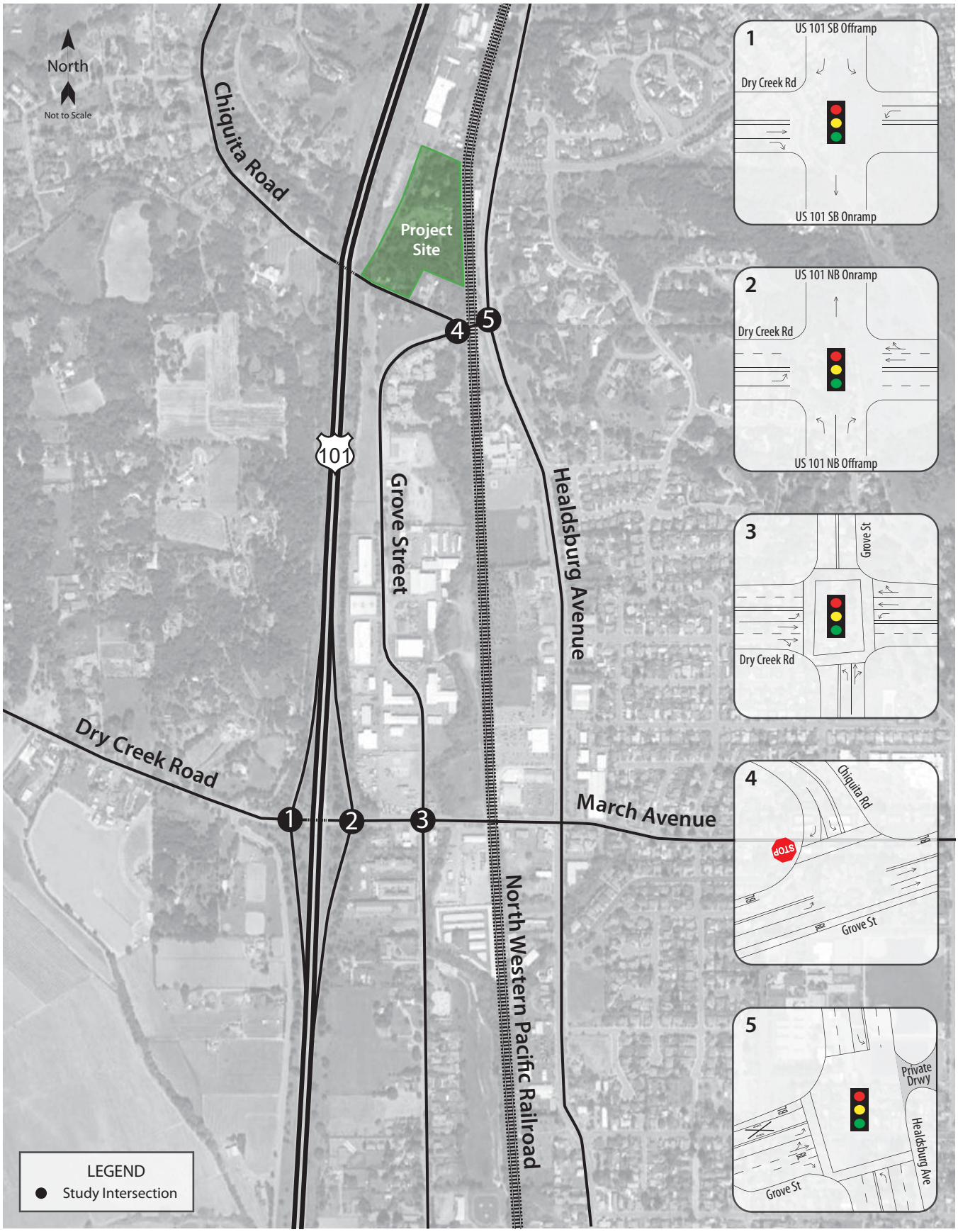
For the intersection of Grove Street/Chiquita Road Future traffic volumes were developed based on the limited information available in the traffic model. The increment of new traffic projected by subtracting the model's 2010 data from 2040 data was added to the actual counts used in the Existing Conditions scenario at this location.

The lane configurations used for the future conditions at the Dry Creek Road study intersections are detailed in *Dry Creek Road Infrastructure Needs Analysis for the City of Healdsburg* (March 2002). These improvements would include widening Dry Creek Road to two lanes in each direction starting at the US 101 North Ramps to east of Healdsburg Avenue. An eastbound right-turn and westbound left-turn lane would be added at Dry Creek Road/US 101 South Ramps and an eastbound left-turn lane at the US 101 North Ramps (the left-turn lanes will be added in the short term under plans underway by the City).

Since the analysis methodologies used in this 2002 analysis have since been updated, additional modifications at the Dry Creek Road/Grove Street intersection are suggested to achieve acceptable operation under the City's standards based on application of the more current methodology. The northbound Grove Street approach should be reconfigured to have a separate left-turn lane with protected left-turn phasing and the right-turn lane converted to use for through/right-turn movements. This change in lane assignment and phasing could be achieved within the existing right-of-way on the northbound approach.

These improvements were assumed to exist for purposes of the Future Conditions analysis and are shown in Figure 5. Additionally, since vehicles currently use the US 101 on and off-ramps as two lanes, it was assumed in the analysis that the off-ramps would both be widened and striped to provide two lanes approaching the intersections.

Under the anticipated Future volumes, and with signalization of the US 101 Ramp intersections and the lane reconfigurations along Dry Creek Road shown in Figure 5, the study intersections are expected to operate acceptably. Future volumes are shown in Figure 6 and operating conditions are summarized in Table 8.



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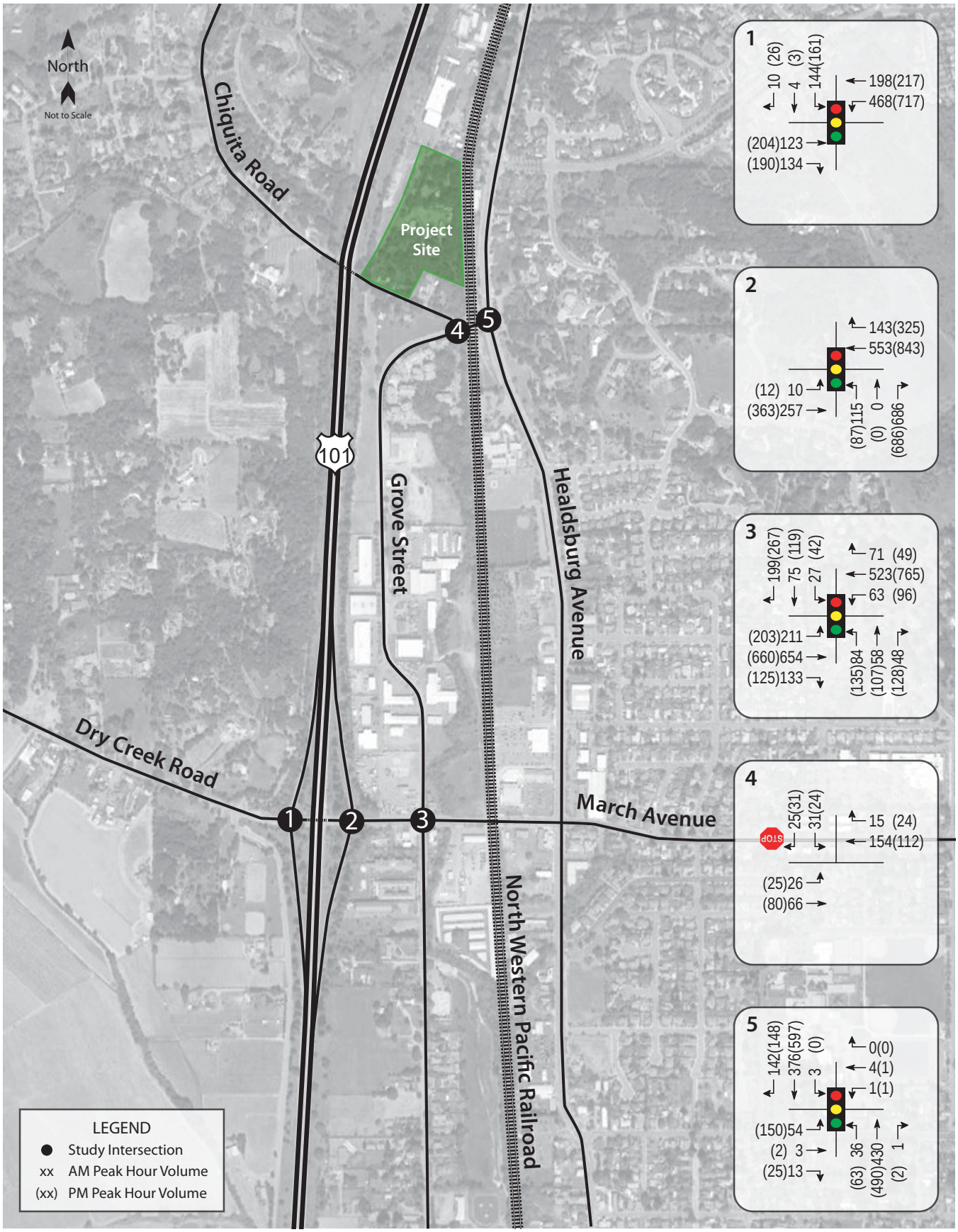
Traffic Impact Study for The Oaks at Foss Creek

Figure 5 – Future Lane Configurations

W-Trans



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Traffic Impact Study for The Oaks at Foss Creek

Figure 6 – Future Traffic Volumes

Table 8 – Future Peak Hour Intersection Levels of Service				
Study Intersection ***Approach***	**AM Peak**		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**
1. US 101 S Ramps/Dry Creek Rd	35.3	D	32.9	C
2. US 101 N Ramps/Dry Creek Rd	36.1	D	51.9	D
3. Grove St/Dry Creek Rd	27.2	C	44.4	D
4. Grove St/Chiquita Rd	2.4	A	1.9	A
Southbound Approach	*9.9*	*A*	*10.0*	*B*
5. Grove St/Healdsburg Ave	7.4	A	10.2	B

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*

Project Description

The project consists of 44 single family homes to be located at 157 Chiquita Road in the City of Healdsburg. Currently on-site there are three single family dwellings. Access to the site will be from both Chiquita Road and Montepuliciano Road. The current proposed project site plan is shown in Figure 7.

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*, 9th Edition, 2012 for "Single Family Detached Housing" (ITE LU 210). Because the site was occupied at the time the counts were collected by three single family dwellings, the trip generation of these residences was considered. "Single Family Detached Housing" rates were also applied to determine trips to deduct due to the loss of the existing dwellings.

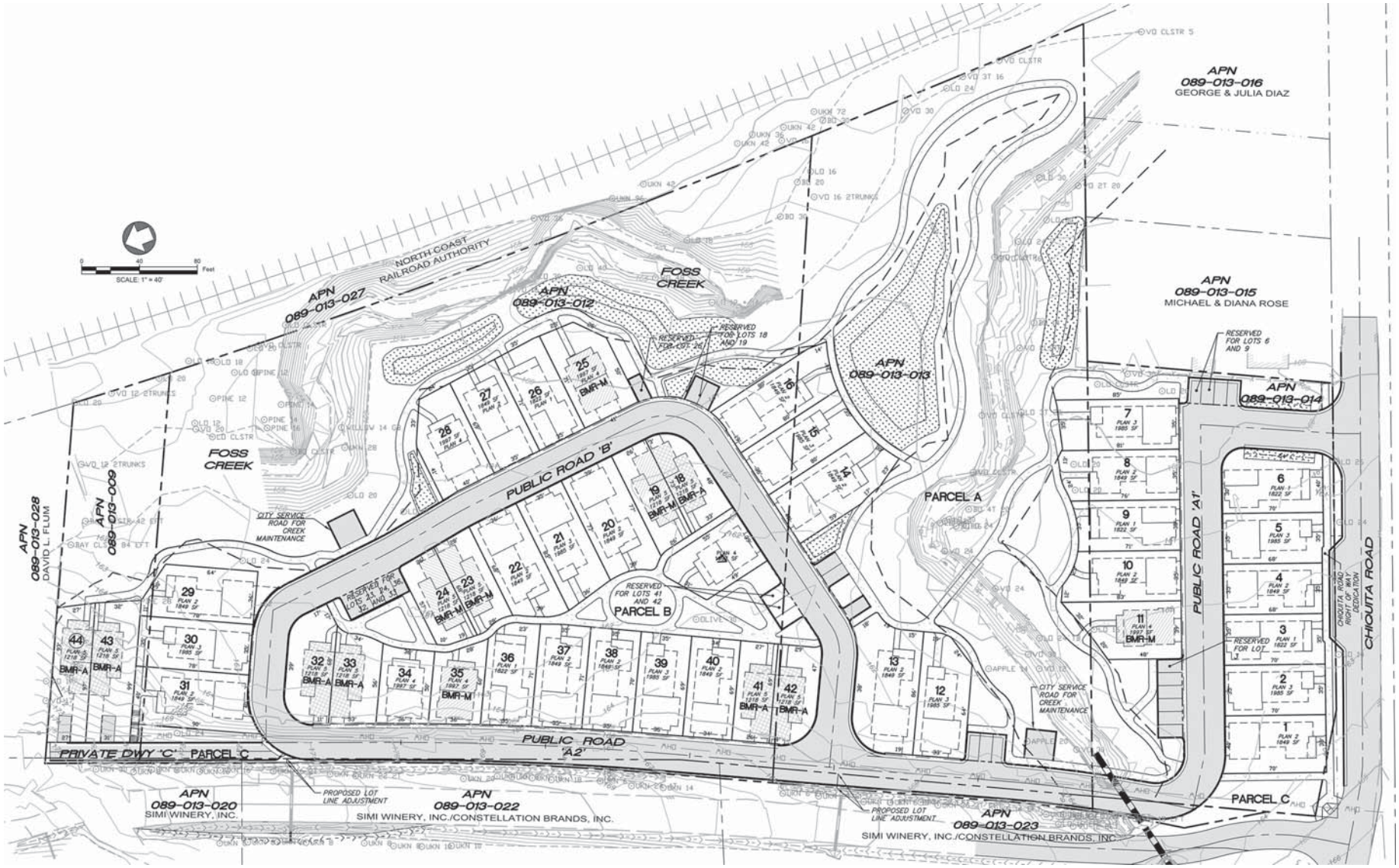
The proposed project at 157 Chiquita Road is expected to generate an average of 390 net new trips per day, including 31 trips during the a.m. peak hour and 41 during the p.m. peak hour. These new trips, indicated in Table 9, represent the increase in traffic associated with the project compared to existing volumes.

Table 9 – Trip Generation Summary											
Land Use	**Units**	**Daily**		**AM Peak Hour**				**PM Peak Hour**			
		Rate	**Trips**	**Rate**	**Trips**	**In**	**Out**	**Rate**	**Trips**	**In**	**Out**
Existing											
Single Family Dwelling	-3 du	9.52	-29	0.75	-2	-1	-1	1.00	-3	-2	-1
Proposed											
Single Family Dwelling	44 du	9.52	419	0.75	33	8	25	1.00	44	28	16
Total			**390**		**31**	**7**	**24**		**41**	**26**	**15**

Note: du = dwelling unit

Trip Distribution

The pattern used to allocate new project trips to the street network was based on traffic studies for similar, nearby projects and familiarity with the area. The applied distribution assumptions and resulting trips are shown in Table 10.



Source: Munselle Civil Engineering 7/16

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Traffic Impact Study for The Oaks at Foss Creek

Figure 7 – Site Plan

Table 10 – Trip Distribution Assumptions				
Route	**Percent**	**Daily Trips**	**AM Trips**	**PM Trips**
US 101 South	40%	156	12	17
West on Dry Creek Rd	5%	20	2	2
East on Dry Creek Rd	10%	39	3	4
Downtown Healdsburg	30%	117	9	12
North on Healdsburg Ave	15%	58	5	6
TOTAL	**100%**	**390**	**31**	**41**

Intersection Operation

Existing plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, the study intersections are expected continue to operate at the same service levels. Existing plus Project levels of service are summarized in Table 11, and Project traffic volumes are shown in Figure 8.

Table 11 – Existing and Existing plus Project Peak Hour Intersection Levels of Service

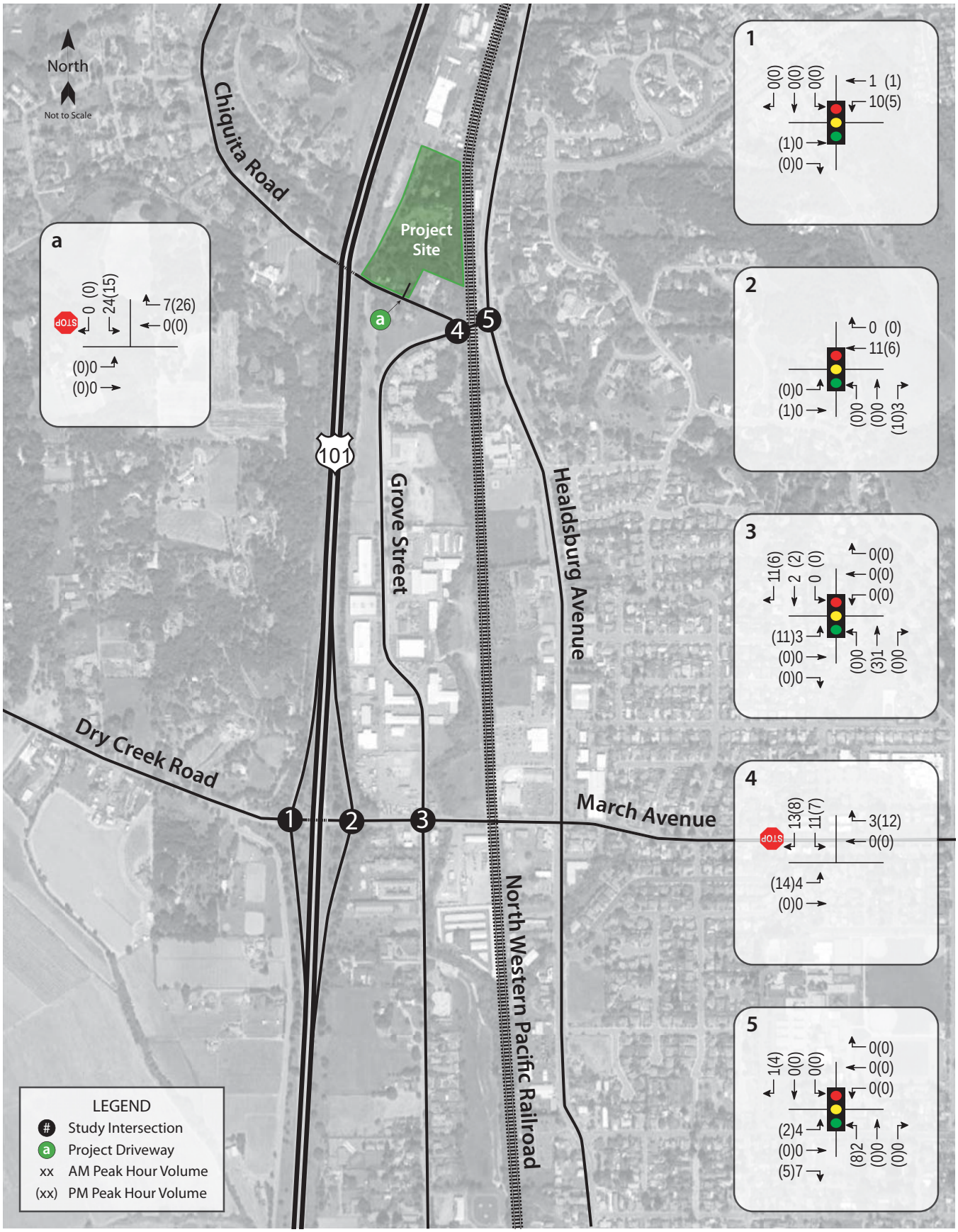
Study Intersection	**Existing Conditions**				**Existing plus Project**			
Approach	**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. US 101 S Ramps/Dry Creek Rd	31.5	D	37.8	E	34.5	D	39.4	E
Southbound Approach	**	*F*	**	*F*	**	*F*	**	*F*
2. US 101 N Ramps/Dry Creek Rd	7.6	A	6.4	A	7.7	A	6.6	A
Northbound Approach	*18.7*	*B*	*20.6*	*C*	*19.0*	*C*	*21.1*	*C*
3. Grove St/Dry Creek Rd	23.7	C	29.1	C	24.4	C	30.6	C
4. Grove St/Chiquita Rd	2.6	A	2.4	A	3.2	A	2.9	A
Southbound Approach	*9.8*	*A*	*9.7*	*A*	*9.9*	*A*	*9.9*	*A*
5. Grove St/Healdsburg Ave	8.6	A	11.3	B	9.2	A	11.8	B

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;* ** = delay greater than 120 seconds

Finding – The intersections are expected to continue operating at acceptable levels of service upon the addition of project trips to the existing volumes.

Baseline plus Project Conditions

With project-related traffic added to Baseline volumes, most of the study intersections are expected to continue operating at the same service levels. The US 101 South Ramps/Dry Creek Road intersection operates deficiently with or without the project during the p.m. peak. These results are summarized in Table 12.



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Traffic Impact Study for The Oaks at Foss Creek

Figure 8 – Project Traffic Volumes

Table 12 – Baseline and Baseline plus Project Peak Hour Intersection Levels of Service								
Study Intersection ***Approach***	**Baseline Conditions**				**Baseline plus Project**			
	AM Peak		**PM Peak**		**AM Peak**		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. US 101 S Ramps/Dry Creek Rd	**51.5**	**F**	**66.9**	**F**	**55.9**	**F**	**69.4**	**F**
Southbound Approach	**	***F***	**	***F***	**	***F***	**	***F***
Improvement: AWSC, WB left-turn lane	12.3	B	14.1	B	12.6	B	14.3	B
2. US 101 N Ramps/Dry Creek Rd	8.3	A	7.8	A	8.4	A	8.1	A
Northbound Approach	*21.1*	*C*	*25.1*	*C*	*21.4*	*C*	*25.9*	*C*
Improvement: EB left-turn lane	8.3	A	7.8	A	8.4	A	8.1	A
Northbound Approach	*21.1*	*C*	*25.1*	*D*	*21.4*	*C*	*25.9*	*C*
3. Grove St/Dry Creek Rd	29.6	C	34.5	C	31.3	C	36.7	D
4. Grove St/Chiquita Rd	2.5	A	2.2	A	3.1	A	2.7	A
Southbound Approach	*9.9*	*A*	*9.9*	*A*	*10.0*	*B*	*10.1*	*B*
5. Grove St/Healdsburg Ave	8.9	A	11.6	B	9.4	A	12.1	B

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;* ** = delay greater than 120 seconds; **Bold** text = deficient operation; Shaded cells = conditions with recommended improvements

Finding – The Dry Creek Road/US 101 Southbound Ramps intersection operates at an unacceptable service level with or without the project during the both peak hours. All other study intersections would operate at an acceptable level of service.

Recommendation – In order to address the deficient operation at US 101 South Ramps/Dry Creek, the project should pay its proportional share towards the planned short-term improvement to install all-way stop controls at the southbound ramp intersection and add left-turn lanes at both intersections. The proportional share is discussed further below.

Future plus Project Conditions

Under the Future plus Project conditions, planned future improvements along Dry Creek Road were included for the analysis. These improvements are described in detail in the Future Conditions section and shown in Figure 5. As the City's Development Impact Fee includes the City's share of funding for these planned future improvements, payment of the fee adequately mitigates the project's potential impacts under Caltrans policy. Upon the addition of project-generated traffic to the anticipated Future volumes, and with the planned improvements discussed above without the project, the study intersections are expected to operate acceptably. The Future plus Project operating conditions are summarized in Table 13.

Table 13 – Future and Future plus Project Peak Hour Levels of Service								
Study Intersection ***Approach***	**Future Conditions**				**Future plus Project**			
	AM Peak		**PM Peak**		**AM Peak**		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. US 101 S Ramps/Dry Creek Rd	35.3	D	32.9	C	35.4	D	33.0	C
2. US 101 N Ramps/Dry Creek Rd	36.1	D	51.9	D	36.3	D	53.1	D
3. Grove St/Dry Creek Rd	27.2	C	44.4	D	28.1	C	46.0	D
4. Grove St/Chiquita Rd	2.4	A	1.9	A	3.0	A	2.4	A
Southbound Approach	*9.9*	*A*	*10.0*	*B*	*10.0*	*B*	*10.2*	*B*
5. Grove St/Healdsburg Ave	7.4	A	10.2	A	7.9	A	10.6	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Finding – With the improvements to Dry Creek Road, as discussed above, the study intersections are expected to operate at acceptable levels of service. Payment of applicable traffic impact fees mitigates the project's contribution to the need for these improvements.

Proportional Share

In order to mitigate the project's impacts at the intersections along Dry Creek Road where near-term improvements are needed or are anticipated to be needed in the future, the project should contribute to the funds already being accumulated by the City. Proportional share calculations are provided in Appendix D.

Short-Term Improvements

Short-term improvements are needed at Dry Creek Road/US 101 South Ramps as an intermediate improvement to address impacts associated with adding traffic projects that are currently going through the approval process. Each of the baseline projects that had not already received entitlements at the time of the analysis (the Oaks at Foss Creek, 255 Dry Creek Road, and 110 Dry Creek Road) should pay their proportional share towards the planned modifications to install stop signs on Dry Creek Road at the southbound ramp intersection and left-turn lanes on Dry Creek Road at both ramps. Based on the number of trips entering the Dry Creek Road/US 101 South from each of the Baseline projects, the proportional share of the cost of these improvements was estimated. The proposed project's proportional share is 18.6 percent. The projects at 255 Dry Creek and 110 Dry Creek Road would have proportional shares of 13.4 percent and 68 percent, respectively.

Future Improvements

Because the changes to the geometrics and phasing at Dry Creek Road/Grove Street were not previously identified, the proportional share of the cost for modifying this intersection was also estimated. This improvement is not necessary in the short term, so the proportional share was estimated as a percent of the total volume change between current and future conditions. With an estimated planning level cost of about $45,000, the project's 3.1 percent share of the impact translates to a cost of $1,386.

Queuing

Unsignalized Intersection - Chiquita Road/Grove Street

Southbound right-turn and eastbound left-turn queues were determined using a methodology contained in "Estimating Maximum Queue Length at Unsignalized Intersections," John T. Gard, *ITE Journal*, November 2001. The current storage length for the southbound right-turn lane and the eastbound left-turn lane are about 45 feet and 75 feet, respectively. Based on the cumulative weekday volumes during both peaks with the addition of the project trips, the maximum queue was determined to be no more than two vehicles. The queuing analysis is included in Appendix E.

Finding – The existing queue lengths are expected to adequately accommodate the projected queues at the Chiquita Road/Grove Street intersection.

Alternative Modes

Pedestrian Facilities

Given the small size of Healdsburg and relative proximity of the residential project to numerous destinations, it is reasonable to assume that some project residents will want to walk, bicycle, and/or use transit for their travels.

Project Site – Sidewalks do not exist along the project frontage, but are being provided on the opposite side of Chiquita Road. Pedestrians will have the option of crossing Chiquita Road near the new subdivision and walking through the Chiquita Grove subdivision to the new sidewalk being provided on the west side of Grove Street to a new crossing at Grove Court. It is noted that while pedestrians will cross Chiquita Road at a mid-block crossing, given the small number of units, good sight lines, and low volume on Chiquita Road, installation of a crosswalk or other crossing facilities is not warranted and therefore not recommended. For pedestrian trips toward Healdsburg Avenue, sidewalks should be provided along the project site's frontage and connecting to existing sidewalks at Grove Street.

Finding – Pedestrian facilities serving the project site are inadequate.

Recommendation – Sidewalks should be provided along the project's frontage, as proposed, but also connecting the site to existing facilities on Grove Street.

Bicycle Facilities

Existing bicycle facilities, including bike lanes on Grove Street, together with shared use of minor streets provide adequate access for bicyclists.

Finding – Bicycle facilities serving the project site are adequate

Transit

Existing transit routes are adequate to accommodate project-generated transit trips. Existing stops are within acceptable walking distance of the site.

Finding – Transit facilities serving the project site are adequate.

Access and Circulation

Site Access

The site would have access from Chiquita Road approximately 250 feet east of Montepuliciano Road. As part of the project, improvements would be made to Montepuliciano Road to provide access to Simi Winery only.

As part of the Chiquita Grove Subdivision, improvements are being made to Chiquita Road and the Chiquita Road/Grove Street intersection. The south side of Chiquita Road will be widened to include on-street parking and several landscaping bulb outs. At the intersection pedestrian facilities including sidewalk, curb and gutter are being added. Further, a rectangular rapid flashing beacon (RRFB) is being added at the mid-block crosswalk on Grove Street south of Chiquita Road. These modifications will improve pedestrian access and improve the neighborhood character of the area, which promotes lower speeds, which would also benefit the project.

Sight Distance

At unsignalized intersections a substantially clear line of sight should be maintained between the driver of a vehicle waiting at the crossroad and the driver of an approaching vehicle. Adequate time must be provided for the waiting vehicle to either cross, turn left, or turn right, without requiring the through traffic to radically alter their speed. Sight distance should be measured from a 3.5-foot height at the location of the driver on the minor road to a 4.25-foot object height in the center of the approaching lane of the major road. Set-back for the driver on the crossroad shall be a minimum of 15 feet, measured from the edge of the traveled way.

Sight distance along Chiquita Road at the project access road was evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distance at intersections of public streets is based on corner sight distance using the approach travel speeds as the basis for determining the recommended sight distance. Additionally, the stopping sight distance needed for a following driver to stop if there is a vehicle waiting to turn into a side street or driveway is evaluated based on stopping sight distance criterion and the approach speed on the major street.

For a 25-mph road the required corner sight distance is 275 feet, which the stopping sight distance needed is 150 feet. Chiquita Road to the east and west of the proposed access road is fairly open and flat. According to the current site plans, the trees along Chiquita Road west of the proposed access road would be removed with the project and replaced with sidewalks and landscaping. To the east, there is an existing fence on the neighbor's property. Based on the site plan, there would be adequate sight distance to the west of the project access road, assuming appropriate landscaping. To the east, it is expected that the existing fence would obstruct the line of sight but it is understood that with the project, the fence would be replaced and relocated at an adequate setback or reduced in height to open up sight lines.

In order to maintain sight lines for vehicles leaving the site, it is recommended that any landscaping be trimmed such that tree canopies are at least seven feet above the ground; other landscaping within the sight lines should be limited to low-lying vegetation no greater than three feet in height. In addition, signs and monuments planned along the project's frontage should be placed in a manner that does not obstruct sight distance at the project intersections.

It should be noted that sight distance at Montepuliciano Road with a 15 foot setback is restricted to the west by the presence of the Simi Winery monument sign and large trees to the west restrict sight distance. However, most vehicles using the driveway would be large winery trucks that would be able to see above the sign. Any passenger vehicles leaving the site would be able to approach the travel lane for a clear line of sight. Since it is a private driveway with minimal passenger vehicle volumes, the sight distance setback requirements may be inappropriate.

Finding – Sight distance to the west of the project access road is expected to be adequate but inadequate to the east of the project access due to the existing neighbor's fence. With the project, it is understood the fence would be replaced and relocated at an adequate setback or reduced in height to open up sight lines.

Recommendation – Landscaping to the west of the project driveway should be maintained so that either low-lying vegetation is kept below three feet or tree canopies are at least seven feet above the ground.

Access Analysis

Since there are limited destinations to the north on Chiquita Road, it is reasonable to assume that most of the inbound vehicles would be coming from the south and turning right into the project site. For those few vehicles that might turn left into the site, the road is relatively straight and flat in the area resulting the unobstructed sight lines. Because there are expected to be so few drivers turning left into the site and the volume on Chiquita Road is minor, a left-turn lane is not warranted even with the highest projected volumes.

Similarly given the low volumes and low speed on Chiquita Road, and the general area of the project, neither acceleration nor deceleration lanes are not warranted under the cumulative scenario which represents the highest volumes. Calculations are in Appendix E.

Conclusions and Recommendations

Conclusions

- The proposed project at 157 Chiquita Road is projected to have a net increase of 390 trips per day, including 31 trips during the a.m. peak hour and 41 during the p.m. peak hour.
- Under the Existing conditions, the study intersections are expected to operate acceptably with or without the project trips.
- Under the Baseline conditions, with and without the project, the US 101 South Ramps are projected to operate unacceptably during both peak hour.
- The US 101 interchange at Dry Creek Road warrants improvements, including adding turn lanes and signalizing both ramps, to accommodate existing and future traffic volumes and to address safety issues as evidenced by above-average collision rates.
- The intersection of Dry Creek Road/Grove Street should be modified to provide a dedicated left-turn lane on the northbound approach.
- All of the study intersections are expected to operate acceptably under future conditions, which includes the planned improvements to Dry Creek Road as well as suggested reconfiguration and re-phasing of Dry Creek Road/Grove Street.
- The project will have inadequate pedestrian access due to lack of connectivity to the existing facilities on Grove Street.
- Neither a left-turn lane, deceleration lane, nor acceleration lane is needed on Chiquita Road at the project driveway.
- Sight distance to the east is constrained to less than the 275 feet recommended.
- The maximum queues at the Chiquita Road/Grove Street intersection is projected to be less than two vehicles, within the current available storage. A left turn lane, deceleration, and acceleration lane is not warranted at the Grove Street driveway.

Recommendations

- The applicant should contribute 18.6 percent of the cost of short-term improvements at the Dry Creek Road interchange that are currently being design for implementation as early as Spring 2017.
- The intersection of Dry Creek Road/Grove Street should be modified to provide a dedicated left-turn lane and protected left-turn phasing on the northbound approach to accommodate future demand. The project should pay a proportional share of the cost of this improvement calculated as 3.1 percent, or $1,386.
- The City should continue to pursue construction of improvements at the US 101/Dry Creek Road interchange by collecting development impact fees.

- Since vehicles currently use the single lane US 101 on and off-ramps as if there were two lanes and since there is adequate road width to fit another lane, it is recommended that the ramps be striped with two lanes near the intersection approaches.

- Sidewalk should be provided connecting the project site to existing facilities on Grove Street.

- Sight lines to the west along Chiquita Road from the project access should be maintained so that either low-lying vegetation is kept below three feet or tree canopies are at least seven feet above the ground.

Study Participants and References

Study Participants

Principal in Charge	Dalene J. Whitlock, PE, PTOE
Assistant Engineer	Briana Byrne, EIT
Assistant Planner	Shannon Baker
Graphics/Editing/Formatting	Angela McCoy

References

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Appendix A

Collision Rate Calculations

Intersection Collision Rate Calculations

Study for Oak at Foss Creek

Intersection # 1: US101 S-Ramp & Dry Creek Rd

Date of Count: Thursday, July 10, 2014

Number of Collisions: 6
Number of Injuries: 2
Number of Fatalities: 0
ADT: 11600
Start Date: January 1, 2011
End Date: December 31, 2015
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Stop & Yield Controls
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{6 \times 1{,}000{,}000}{11{,}600 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.28 c/mve**	**0.0%**	**33.3%**
Statewide Average*	**0.15 c/mve**	**1.0%**	**41.9%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Intersection # 2: US101 N-Ramp & Dry Creek Rd

Date of Count: Tuesday, July 08, 2014

Number of Collisions: 8
Number of Injuries: 1
Number of Fatalities: 0
ADT: 16700
Start Date: January 1, 2011
End Date: December 31, 2015
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Stop & Yield Controls
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{8 \times 1{,}000{,}000}{16{,}700 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.26 c/mve**	**0.0%**	**12.5%**
Statewide Average*	**0.15 c/mve**	**1.0%**	**41.9%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

Study for Oak at Foss Creek

Intersection # 3: Dry Creek Rd & Grove Street

Date of Count: Tuesday, April 15, 2014

Number of Collisions: 19
Number of Injuries: 7
Number of Fatalities: 0
ADT: 18700
Start Date: January 1, 2011
End Date: December 31, 2015
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{19 \times 1{,}000{,}000}{18{,}700 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.56 c/mve**	**0.0%**	**36.8%**
Statewide Average*	**0.27 c/mve**	**0.4%**	**41.9%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Intersection # 4: Grove St & Chiquita Rd

Date of Count: Wednesday, June 01, 2016

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 3000
Start Date: January 1, 2011
End Date: December 31, 2015
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \times 1{,}000{,}000}{3{,}000 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.00 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.18 c/mve**	**0.7%**	**36.4%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

Study for Oak at Foss Creek

Intersection # 5: Healdsburg Ave & Grove St

Date of Count: Tuesday, June 07, 2016

Number of Collisions: 3
Number of Injuries: 0
Number of Fatalities: 0
ADT: 9200
Start Date: January 1, 2011
End Date: December 31, 2015
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{3 \times 1{,}000{,}000}{9{,}200 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.18 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.27 c/mve**	**0.4%**	**41.9%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Intersection # 6: &

Date of Count: Saturday, January 00, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

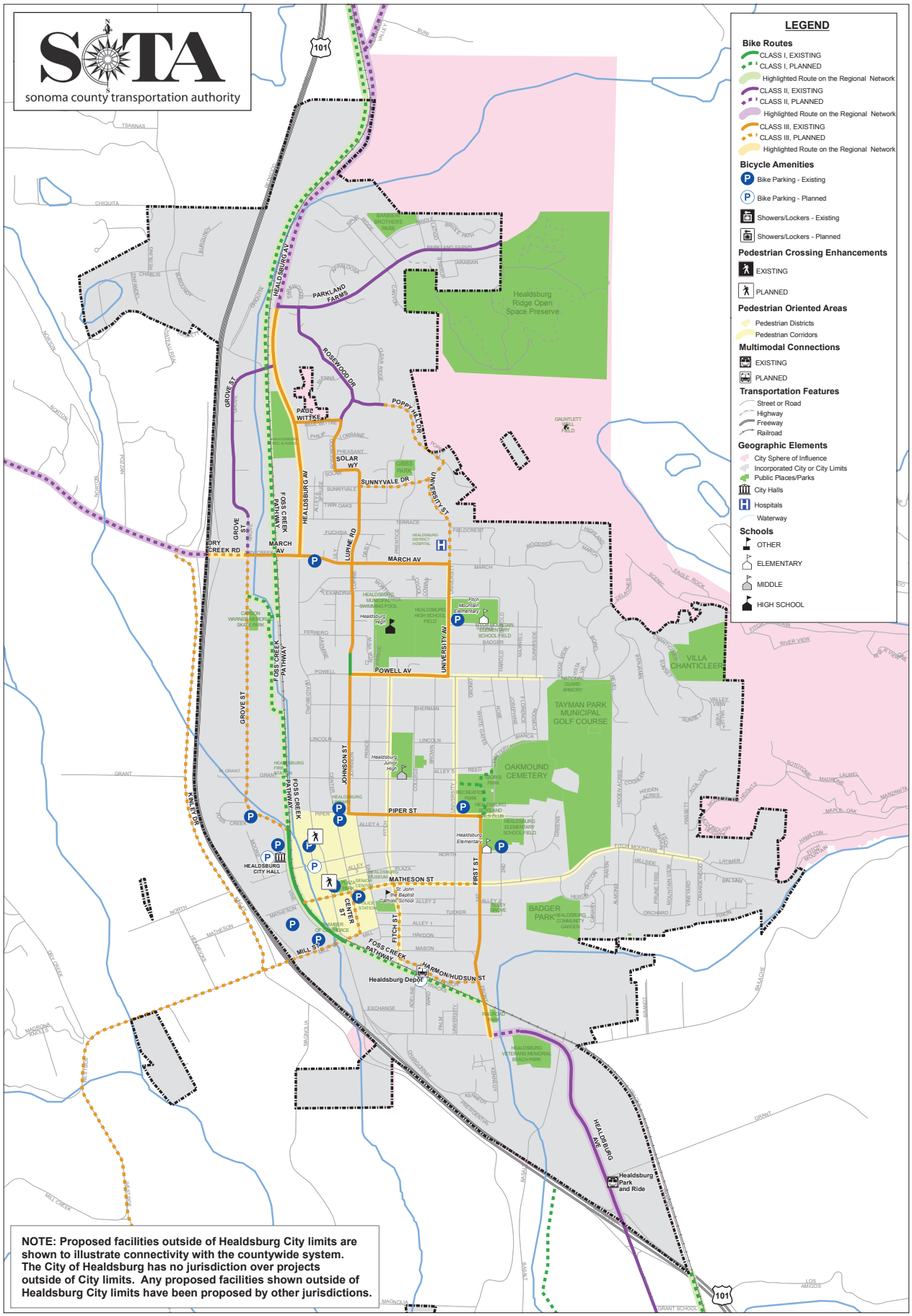
$$\text{collision rate} = \frac{0 \times 1{,}000{,}000}{0 \times 365 \times 0}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.00 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.30 c/mve**	**0.7%**	**40.3%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2012 Collision Data on California State Highways, Caltrans

Appendix B

City of Healdsburg Bicycle and Pedestrian Master Plan Map



NOTE: Proposed facilities outside of Healdsburg City limits are shown to illustrate connectivity with the countywide system. The City of Healdsburg has no jurisdiction over projects outside of City limits. Any proposed facilities shown outside of Healdsburg City limits have been proposed by other jurisdictions.

EXISTING AND PLANNED BICYCLE AND PEDESTRIAN FACITLITIES
SONOMA COUNTY, CALIFORNIA

CITY OF HEALDSBURG AND VICINITY

Meters: 0 125 250 500 750 1,000

Feet: 0 500 1,000 2,000 3,000 4,000

Author: Sonoma County Transportation Authority
Date: April 20, 2006
Revised: July 16, 2008
Projection & Coordinate System: CA State Plane, Zone 11, NAD 83, US Survey Feet, Lambert Conformal Conic Projection.
Project Source: s:\SCTA\SCTA Modeling Program\PROJECTS\bikemaps\wtransupdates\healdsburg_update.mxd
Sources: SCTA Countywide Bicycle and Pedestrian Advisory Committee, Sonoma County GIS

This map is for illustrative purposes only, and though care has been taken to ensure that data is accurate, maps and represented data are provided without warranty of any kind.

Appendix C

Intersection Level of Service Calculations

Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	Two-way stop	Delay (sec / veh):	182.2
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	55.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	132	2	7	0	111	62	359	198	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	132	2	7	0	111	62	359	198	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9150	0.9150	0.9150	1.0000	0.9150	0.9150	0.9150	0.9150	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	36	1	2	0	30	17	98	54	0
Total Analysis Volume [veh/h]	0	0	0	144	2	8	0	121	68	392	216	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	0			3			0			0		
Two-Stage Gap Acceptance				No								
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	1.11	0.02	0.01	0.00	0.00	0.00	0.28	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	181.47	182.17	9.41	0.00	0.00	0.00	8.62	0.00	0.00
Movement LOS				F	F	A		A	A	A	A	
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	8.46	8.46	0.03	0.00	0.00	0.00	2.29	2.29	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	211.46	211.46	0.74	0.00	0.00	0.00	57.33	57.33	0.00
d_A, Approach Delay [s/veh]	0.00			172.54			0.00			5.56		
Approach LOS	A			F			A			A		
d_I, Intersection Delay [s/veh]	31.49											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Two-way stop	Delay (sec / veh):	27.3
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	55.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	107	0	434	0	0	0	10	230	0	0	455	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	0	434	0	0	0	10	230	0	0	455	107
Peak Hour Factor	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	0	121	0	0	0	3	64	0	0	126	30
Total Analysis Volume [veh/h]	119	0	482	0	0	0	11	256	0	0	506	119
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	2			0			0			0		
Two-Stage Gap Acceptance	No											
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.42	0.00	0.62	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	26.98	27.31	16.68	0.00	0.00	0.00	8.81	0.00	0.00	0.00	0.00	0.00
Movement LOS	D	D	C				A	A			A	A
95th-Percentile Queue Length [veh]	2.01	2.01	4.31	0.00	0.00	0.00	1.15	1.15	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	50.29	50.29	107.86	0.00	0.00	0.00	28.67	28.67	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.72			0.00			0.36			0.00		
Approach LOS	C			A			A			A		
d_I, Intersection Delay [s/veh]	7.60											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 3: Grove Street/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	23.7
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.905

Intersection Setup

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	265.00	75.00	100.00	75.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

volumes

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	83	42	48	21	64	148	111	497	111	60	434	43
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	42	48	21	64	148	111	497	111	60	434	43
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	12	13	6	18	41	31	138	31	17	121	12
Total Analysis Volume [veh/h]	92	47	53	23	71	164	123	552	123	67	482	48
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	67
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	3	6	0	3	6	0
Maximum Green [s]	0	15	0	0	15	0	10	30	0	10	30	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	29	0	0	29	0	13	34	0	13	34	0
Vehicle Extension [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	8	0	0	8	0	0	8	0
Pedestrian Clearance [s]	0	16	0	0	15	0	0	9	0	0	8	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	C	L	C	R
L, Total Lost Time per Cycle [s]	3.60	3.60	3.60	3.00	4.00	4.00	3.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.60	1.60	1.00	2.00	2.00	1.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	25	6	28	28	3	25	25
g / C, Green / Cycle	0.38	0.38	0.38	0.09	0.41	0.41	0.05	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.38	0.04	0.33	0.08	0.21	0.21	0.04	0.29	0.03
s, saturation flow rate [veh/h]	368	1425	791	1597	1676	1572	1597	1676	1425
c, Capacity [veh/h]	228	537	357	151	694	651	81	621	528
d1, Uniform Delay [s]	19.11	13.51	16.77	29.74	14.51	14.52	31.50	18.65	13.75
k, delay calibration	0.44	0.04	0.32	0.04	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.35	0.03	8.06	3.94	2.58	2.76	7.56	9.23	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

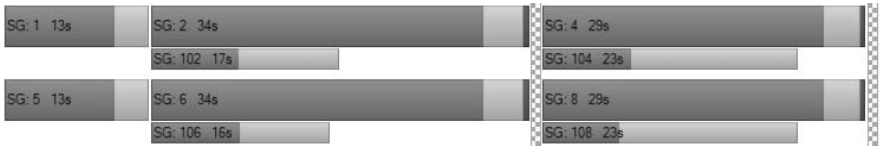
X, volume / capacity	0.61	0.10	0.72	0.81	0.50	0.50	0.82	0.78	0.09
d, Delay for Lane Group [s/veh]	29.46	13.54	24.84	33.68	17.09	17.28	39.05	27.88	14.09
Lane Group LOS	C	B	C	C	B	B	D	C	B
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.52	0.48	3.50	2.03	4.03	3.82	1.20	7.58	0.49
50th-Percentile Queue Length [ft]	63.04	12.07	87.62	50.66	100.72	95.47	30.11	189.62	12.25
95th-Percentile Queue Length [veh]	4.54	0.87	6.31	3.65	7.25	6.87	2.17	12.10	0.88
95th-Percentile Queue Length [ft]	113.47	21.73	157.71	91.18	181.29	171.85	54.19	302.54	22.05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.46	29.46	13.54	24.84	24.84	24.84	33.68	17.16	17.28	39.05	27.88	14.09
Movement LOS	C	C	B	C	C	C	C	B	B	D	C	B
d_A, Approach Delay [s/veh]	25.07			24.84			19.72			28.03		
Approach LOS	C			C			B			C		
d_I, Intersection Delay [s/veh]	23.68											
Intersection LOS	C											
Intersection V/C	0.905											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Grove St/Chiquita Rd

Control Type:	Two-way stop	Delay (sec / veh):	10.3
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.045

Intersection Setup

Name	Chiquita Rd		Grove St		Grove St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0
Pocket Length [ft]	50.00	100.00	75.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

volumes

Name	Chiquita Rd		Grove St		Grove St	
Base Volume Input [veh/h]	29	24	25	57	126	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	24	25	57	126	12
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	7	7	16	35	3
Total Analysis Volume [veh/h]	32	27	28	63	140	13
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane						
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.03	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.31	9.12	7.57	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.14	0.09	0.06	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	3.54	2.32	1.50	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.77		2.33		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.60					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Grove St/Healdsburg Ave

Control Type:	Signalized	Delay (sec / veh):	8.6
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.199

Intersection Setup

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	80.00	100.00	100.00	135.00	100.00	70.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

volumes

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Base Volume Input [veh/h]	36	224	1	3	292	115	43	3	13	1	4	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	224	1	3	292	115	43	3	13	1	4	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	62	0	1	81	32	12	1	4	0	1	0
Total Analysis Volume [veh/h]	40	249	1	3	324	128	48	3	14	1	4	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	41			0			7			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	3	6	0	3	6	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	15	30	0	0	20	0	0	15	0
Amber [s]	3.0	3.7	0.0	3.0	3.7	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	1.0	0.0
Split [s]	21	35	0	6	20	0	0	19	0	0	20	0
Vehicle Extension [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.1	0.0	1.0	2.1	0.0	0.0	1.6	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
L, Total Lost Time per Cycle [s]	3.00	4.10	4.10	3.00	4.10	4.10	3.60	3.60	3.60	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	2.10	2.10	1.00	2.10	2.10	1.60	1.60	1.60	2.20
g_i, Effective Green Time [s]	2	61	61	0	59	59	3	3	3	1
g / C, Green / Cycle	0.03	0.77	0.77	0.00	0.74	0.74	0.04	0.04	0.04	0.01
(v / s)_i Volume / Saturation Flow Rate	0.02	0.07	0.07	0.00	0.13	0.13	0.01	0.01	0.01	0.00
s, saturation flow rate [veh/h]	1774	1863	1860	1774	1863	1683	1774	1784	1100	1844
c, Capacity [veh/h]	52	1427	1425	6	1378	1245	67	67	41	14
d1, Uniform Delay [s]	38.61	2.35	2.35	39.87	3.10	3.12	37.65	37.65	37.59	39.58
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.36	0.12	0.12	26.26	0.27	0.31	1.33	1.32	1.78	6.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

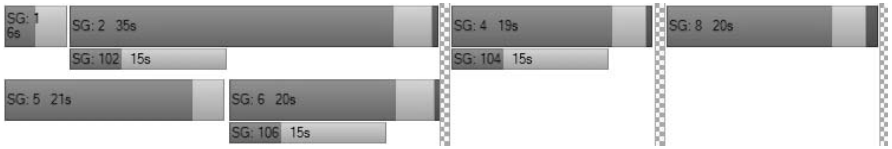
X, volume / capacity	0.77	0.09	0.09	0.54	0.17	0.18	0.38	0.38	0.34	0.37
d, Delay for Lane Group [s/veh]	46.97	2.47	2.47	66.13	3.37	3.42	38.98	38.96	39.37	45.70
Lane Group LOS	D	A	A	E	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	0.88	0.33	0.33	0.10	0.81	0.77	0.50	0.50	0.28	0.12
50th-Percentile Queue Length [ft]	21.95	8.13	8.13	2.45	20.26	19.20	12.45	12.46	7.00	2.95
95th-Percentile Queue Length [veh]	1.58	0.59	0.59	0.18	1.46	1.38	0.90	0.90	0.50	0.21
95th-Percentile Queue Length [ft]	39.51	14.64	14.63	4.42	36.47	34.57	22.40	22.43	12.60	5.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.97	2.47	2.47	66.13	3.39	3.42	38.97	38.96	39.37	45.70	45.70	45.70
Movement LOS	D	A	A	E	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	8.61			3.81			39.06			45.70		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	8.59											
Intersection LOS	A											
Intersection V/C	0.199											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	Two-way stop	Delay (sec / veh):	371.4
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	104	2	25	0	200	170	436	214	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	104	2	25	0	200	170	436	214	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9670	0.9670	0.9670	1.0000	0.9670	0.9670	0.9670	0.9670	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	27	1	6	0	52	44	113	55	0
Total Analysis Volume [veh/h]	0	0	0	108	2	26	0	207	176	451	221	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	0			3			0			0		
Two-Stage Gap Acceptance				No								
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	1.44	0.03	0.03	0.00	0.00	0.00	0.38	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	366.22	371.43	9.54	0.00	0.00	0.00	9.96	0.00	0.00
Movement LOS				F	F	A		A	A	A	A	
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	8.99	8.99	0.10	0.00	0.00	0.00	3.78	3.78	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	224.68	224.68	2.46	0.00	0.00	0.00	94.44	94.44	0.00
d_A, Approach Delay [s/veh]	0.00			298.11			0.00			6.68		
Approach LOS	A			F			A			A		
d_I, Intersection Delay [s/veh]	37.81											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Two-way stop	Delay (sec / veh):	38.0
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	71	0	438	0	0	0	12	296	0	0	572	266
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	0	438	0	0	0	12	296	0	0	572	266
Peak Hour Factor	0.9450	0.9450	0.9450	1.0000	1.0000	1.0000	0.9450	0.9450	1.0000	1.0000	0.9450	0.9450
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	0	116	0	0	0	3	78	0	0	151	70
Total Analysis Volume [veh/h]	75	0	463	0	0	0	13	313	0	0	605	281
Pedestrian Volume [ped/h]	0			16			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	2			0			0			0		
Two-Stage Gap Acceptance	No											
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.39	0.00	0.64	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	35.50	38.03	18.21	0.00	0.00	0.00	9.94	0.00	0.00	0.00	0.00	0.00
Movement LOS	E	E	C				A	A			A	A
95th-Percentile Queue Length [veh]	1.73	1.73	4.61	0.00	0.00	0.00	2.25	2.25	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	43.28	43.28	115.30	0.00	0.00	0.00	56.32	56.32	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	20.62			0.00			0.40			0.00		
Approach LOS	C			A			A			A		
d_I, Intersection Delay [s/veh]	6.41											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 3: Grove Street/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.131

Intersection Setup

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	265.00	75.00	100.00	75.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

volumes

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	122	62	116	20	66	125	92	469	105	86	578	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	122	62	116	20	66	125	92	469	105	86	578	24
Peak Hour Factor	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	16	30	5	17	32	24	122	27	22	150	6
Total Analysis Volume [veh/h]	127	64	120	21	69	130	96	487	109	89	600	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	67
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	3	6	0	3	6	0
Maximum Green [s]	0	15	0	0	15	0	10	30	0	10	30	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	29	0	0	29	0	13	34	0	13	34	0
Vehicle Extension [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	8	0	0	8	0	0	8	0
Pedestrian Clearance [s]	0	16	0	0	15	0	0	9	0	0	8	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	C	L	C	R
L, Total Lost Time per Cycle [s]	3.60	3.60	3.60	3.00	4.00	4.00	3.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.60	1.60	1.00	2.00	2.00	1.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	25	5	26	26	5	26	26
g / C, Green / Cycle	0.38	0.38	0.38	0.07	0.39	0.39	0.07	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.51	0.08	0.27	0.06	0.18	0.18	0.06	0.36	0.02
s, saturation flow rate [veh/h]	374	1425	818	1597	1676	1572	1597	1676	1425
c, Capacity [veh/h]	231	538	367	119	664	622	110	654	556
d1, Uniform Delay [s]	22.86	14.18	16.21	30.55	14.97	14.99	30.77	19.40	12.68
k, delay calibration	0.50	0.04	0.19	0.04	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	27.71	0.08	2.79	4.90	2.31	2.49	5.31	19.85	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

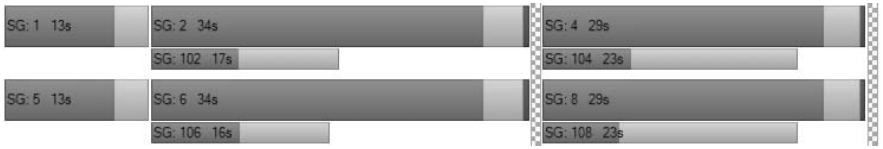
X, volume / capacity	0.83	0.22	0.60	0.81	0.46	0.46	0.81	0.92	0.04
d, Delay for Lane Group [s/veh]	50.58	14.26	19.00	35.45	17.28	17.47	36.08	39.25	12.83
Lane Group LOS	D	B	B	D	B	B	D	D	B
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	4.78	1.15	2.52	1.63	3.57	3.40	1.52	11.53	0.24
50th-Percentile Queue Length [ft]	119.47	28.75	63.01	40.66	89.30	84.97	38.09	288.31	5.98
95th-Percentile Queue Length [veh]	8.36	2.07	4.54	2.93	6.43	6.12	2.74	17.10	0.43
95th-Percentile Queue Length [ft]	209.10	51.75	113.42	73.19	160.75	152.94	68.56	427.55	10.77

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.58	50.58	14.26	19.00	19.00	19.00	35.45	17.35	17.47	36.08	39.25	12.83
Movement LOS	D	D	B	B	B	B	D	B	B	D	D	B
d_A, Approach Delay [s/veh]	36.56			19.00			19.88			37.93		
Approach LOS	D			B			B			D		
d_I, Intersection Delay [s/veh]	29.11											
Intersection LOS	C											
Intersection V/C	1.131											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Grove St/Chiquita Rd

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.039

Intersection Setup

Name	Chiquita Rd		Grove St		Grove St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0
Pocket Length [ft]	50.00	100.00	75.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

volumes

Name	Chiquita Rd		Grove St		Grove St	
Base Volume Input [veh/h]	24	31	25	80	112	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	31	25	80	112	24
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	9	7	22	31	7
Total Analysis Volume [veh/h]	27	34	28	89	124	27
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane						
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.04	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.40	9.11	7.57	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.12	0.12	0.06	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	3.03	2.90	1.50	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.68		1.81		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.44					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Grove St/Healdsburg Ave

Control Type:	Signalized	Delay (sec / veh):	11.3
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.251

Intersection Setup

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	80.00	100.00	100.00	135.00	100.00	70.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

volumes

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Base Volume Input [veh/h]	58	272	2	0	340	113	105	2	22	1	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	272	2	0	340	113	105	2	22	1	1	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	76	1	0	94	31	29	1	6	0	0	0
Total Analysis Volume [veh/h]	64	302	2	0	378	126	117	2	24	1	1	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	18			0			4			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	3	6	0	3	6	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	15	30	0	0	20	0	0	15	0
Amber [s]	3.0	3.7	0.0	3.0	3.7	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	1.0	0.0
Split [s]	21	35	0	6	20	0	0	19	0	0	20	0
Vehicle Extension [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.1	0.0	1.0	2.1	0.0	0.0	1.6	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
L, Total Lost Time per Cycle [s]	3.00	4.10	4.10	3.00	4.10	4.10	3.60	3.60	3.60	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	2.10	2.10	1.00	2.10	2.10	1.60	1.60	1.60	2.20
g_i, Effective Green Time [s]	4	61	61	0	57	57	4	4	4	0
g / C, Green / Cycle	0.05	0.76	0.76	0.00	0.71	0.71	0.05	0.05	0.05	0.00
(v / s)_i Volume / Saturation Flow Rate	0.04	0.08	0.08	0.00	0.14	0.14	0.03	0.03	0.02	0.00
s, saturation flow rate [veh/h]	1774	1863	1858	1774	1863	1704	1774	1777	1424	1817
c, Capacity [veh/h]	84	1409	1405	1	1321	1209	95	95	76	6
d1, Uniform Delay [s]	37.70	2.59	2.59	0.00	3.93	3.95	37.12	37.12	36.49	39.83
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.12	0.15	0.16	0.00	0.33	0.38	2.49	2.48	0.86	10.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

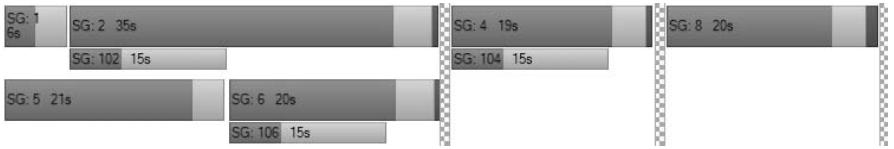
X, volume / capacity	0.76	0.11	0.11	0.00	0.20	0.20	0.63	0.62	0.31	0.32
d, Delay for Lane Group [s/veh]	42.82	2.75	2.75	0.00	4.27	4.32	39.62	39.61	37.36	50.15
Lane Group LOS	D	A	A	A	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.32	0.44	0.44	0.00	1.13	1.07	1.17	1.17	0.46	0.06
50th-Percentile Queue Length [ft]	33.02	10.99	10.97	0.00	28.22	26.74	29.25	29.27	11.41	1.41
95th-Percentile Queue Length [veh]	2.38	0.79	0.79	0.00	2.03	1.92	2.11	2.11	0.82	0.10
95th-Percentile Queue Length [ft]	59.44	19.77	19.75	0.00	50.79	48.12	52.66	52.69	20.54	2.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.82	2.75	2.75	0.00	4.28	4.32	39.61	39.61	37.36	50.15	50.15	50.15
Movement LOS	D	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	9.72			4.29			39.23			50.15		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	11.26											
Intersection LOS	B											
Intersection V/C	0.251											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	Two-way stop	Delay (sec / veh):	313.1
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.019

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	132	2	7	0	111	62	359	198	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	9	0	0	0	12	0	29	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	141	2	7	0	123	62	388	210	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9150	0.9150	0.9150	1.0000	0.9150	0.9150	0.9150	0.9150	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	39	1	2	0	34	17	106	57	0
Total Analysis Volume [veh/h]	0	0	0	154	2	8	0	134	68	424	230	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	0			3			0			0		
Two-Stage Gap Acceptance				No								
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	1.42	0.02	0.01	0.00	0.00	0.00	0.31	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	312.39	313.09	9.49	0.00	0.00	0.00	8.80	0.00	0.00
Movement LOS				F	F	A		A	A	A	A	
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	11.16	11.16	0.03	0.00	0.00	0.00	2.66	2.66	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	279.04	279.04	0.75	0.00	0.00	0.00	66.54	66.54	0.00
d_A, Approach Delay [s/veh]	0.00			297.62			0.00			5.71		
Approach LOS	A			F			A			A		
d_I, Intersection Delay [s/veh]	51.51											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Two-way stop	Delay (sec / veh):	32.4
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	55.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	107	0	434	0	0	0	10	230	0	0	455	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	19	0	0	0	0	21	0	0	41	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	0	453	0	0	0	10	251	0	0	496	122
Peak Hour Factor	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	0	126	0	0	0	3	70	0	0	138	34
Total Analysis Volume [veh/h]	119	0	503	0	0	0	11	279	0	0	551	136
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	2			0			0			0		
Two-Stage Gap Acceptance	No											
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.48	0.00	0.66	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	32.08	32.39	18.51	0.00	0.00	0.00	9.02	0.00	0.00	0.00	0.00	0.00
Movement LOS	D	D	C				A	A			A	A
95th-Percentile Queue Length [veh]	2.40	2.40	5.07	0.00	0.00	0.00	1.39	1.39	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	59.95	59.95	126.84	0.00	0.00	0.00	34.63	34.63	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	21.11			0.00			0.34			0.00		
Approach LOS	C			A			A			A		
d_I, Intersection Delay [s/veh]	8.27											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 3: Grove Street/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	29.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.999

Intersection Setup

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	265.00	75.00	100.00	75.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

volumes

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	83	42	48	21	64	148	111	497	111	60	434	43
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	8	15	8	9	12	11	19	10	6	25	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	102	50	63	29	73	160	122	516	121	66	459	48
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	14	18	8	20	44	34	143	34	18	128	13
Total Analysis Volume [veh/h]	113	56	70	32	81	178	136	573	134	73	510	53
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	67
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	3	6	0	3	6	0
Maximum Green [s]	0	15	0	0	15	0	10	30	0	10	30	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	29	0	0	29	0	13	34	0	13	34	0
Vehicle Extension [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	8	0	0	8	0	0	8	0
Pedestrian Clearance [s]	0	16	0	0	15	0	0	9	0	0	8	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	C	L	C	R
L, Total Lost Time per Cycle [s]	3.60	3.60	3.60	3.00	4.00	4.00	3.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.60	1.60	1.00	2.00	2.00	1.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	25	7	27	27	4	24	24
g / C, Green / Cycle	0.38	0.38	0.38	0.10	0.41	0.41	0.06	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.43	0.05	0.42	0.09	0.22	0.22	0.05	0.30	0.04
s, saturation flow rate [veh/h]	392	1425	694	1597	1676	1568	1597	1676	1425
c, Capacity [veh/h]	238	537	321	167	686	641	89	605	514
d1, Uniform Delay [s]	21.03	13.68	17.50	29.38	14.95	14.96	31.29	19.68	14.22
k, delay calibration	0.50	0.04	0.50	0.06	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.57	0.04	31.21	5.18	2.95	3.15	6.74	13.48	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

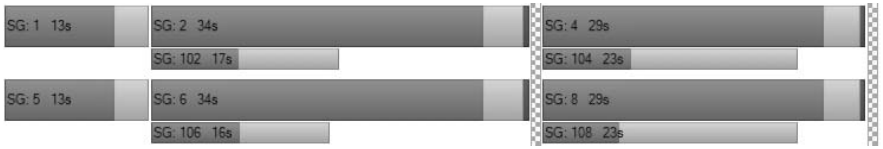
X, volume / capacity	0.71	0.13	0.91	0.82	0.53	0.53	0.82	0.84	0.10
d, Delay for Lane Group [s/veh]	37.60	13.72	48.72	34.56	17.90	18.11	38.03	33.16	14.63
Lane Group LOS	D	B	D	C	B	B	D	C	B
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	3.65	0.65	5.92	2.29	4.36	4.12	1.29	8.89	0.55
50th-Percentile Queue Length [ft]	91.27	16.15	147.88	57.23	108.95	102.96	32.26	222.17	13.87
95th-Percentile Queue Length [veh]	6.57	1.16	9.90	4.12	7.78	7.41	2.32	13.78	1.00
95th-Percentile Queue Length [ft]	164.28	29.07	247.59	103.01	194.54	185.33	58.07	344.39	24.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.60	37.60	13.72	48.72	48.72	48.72	34.56	17.98	18.11	38.03	33.16	14.63
Movement LOS	D	D	B	D	D	D	C	B	B	D	C	B
d_A, Approach Delay [s/veh]	30.61			48.72			20.67			32.17		
Approach LOS	C			D			C			C		
d_I, Intersection Delay [s/veh]	29.56											
Intersection LOS	C											
Intersection V/C	0.999											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Grove St/Chiquita Rd

Control Type:	Two-way stop	Delay (sec / veh):	10.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.046

Intersection Setup

Name	Chiquita Rd		Grove St		Grove St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0
Pocket Length [ft]	50.00	100.00	75.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

volumes

Name	Chiquita Rd		Grove St		Grove St	
Base Volume Input [veh/h]	29	24	25	57	126	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	9	11	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	24	25	66	137	12
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	7	7	18	38	3
Total Analysis Volume [veh/h]	32	27	28	73	152	13
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.03	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.48	9.19	7.60	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.15	0.09	0.06	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	3.65	2.35	1.52	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.89		2.11		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.45					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Grove St/Healdsburg Ave

Control Type:	Signalized	Delay (sec / veh):	8.9
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.207

Intersection Setup

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	80.00	100.00	100.00	135.00	100.00	70.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

volumes

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Base Volume Input [veh/h]	36	224	1	3	292	115	43	3	13	1	4	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	0	0	1	11	7	0	2	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	230	1	3	293	126	50	3	15	1	4	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	64	0	1	81	35	14	1	4	0	1	0
Total Analysis Volume [veh/h]	40	256	1	3	326	140	56	3	17	1	4	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	41			0			7			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	3	6	0	3	6	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	15	30	0	0	20	0	0	15	0
Amber [s]	3.0	3.7	0.0	3.0	3.7	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	1.0	0.0
Split [s]	21	35	0	6	20	0	0	19	0	0	20	0
Vehicle Extension [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.1	0.0	1.0	2.1	0.0	0.0	1.6	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
L, Total Lost Time per Cycle [s]	3.00	4.10	4.10	3.00	4.10	4.10	3.60	3.60	3.60	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	2.10	2.10	1.00	2.10	2.10	1.60	1.60	1.60	2.20
g_i, Effective Green Time [s]	2	61	61	0	59	59	3	3	3	1
g / C, Green / Cycle	0.03	0.76	0.76	0.00	0.74	0.74	0.04	0.04	0.04	0.01
(v / s)_i Volume / Saturation Flow Rate	0.02	0.07	0.07	0.00	0.13	0.13	0.02	0.02	0.02	0.00
s, saturation flow rate [veh/h]	1774	1863	1860	1774	1863	1672	1774	1783	1111	1844
c, Capacity [veh/h]	52	1420	1418	6	1371	1231	73	74	46	14
d1, Uniform Delay [s]	38.61	2.43	2.43	39.87	3.21	3.22	37.44	37.44	37.39	39.58
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.36	0.13	0.13	26.26	0.28	0.32	1.32	1.31	1.84	6.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

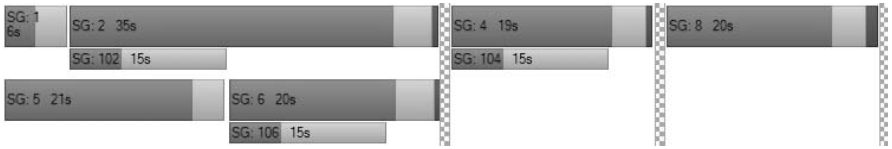
X, volume / capacity	0.77	0.09	0.09	0.54	0.18	0.18	0.40	0.40	0.37	0.37
d, Delay for Lane Group [s/veh]	46.97	2.56	2.56	66.13	3.49	3.55	38.76	38.75	39.23	45.70
Lane Group LOS	D	A	A	E	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	0.88	0.35	0.35	0.10	0.87	0.82	0.57	0.57	0.34	0.12
50th-Percentile Queue Length [ft]	21.95	8.67	8.67	2.45	21.65	20.42	14.33	14.34	8.45	2.95
95th-Percentile Queue Length [veh]	1.58	0.62	0.62	0.18	1.56	1.47	1.03	1.03	0.61	0.21
95th-Percentile Queue Length [ft]	39.51	15.61	15.60	4.42	38.97	36.75	25.79	25.81	15.21	5.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.97	2.56	2.56	66.13	3.51	3.55	38.76	38.75	39.23	45.70	45.70	45.70
Movement LOS	D	A	A	E	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	8.54			3.92			38.86			45.70		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	8.92											
Intersection LOS	A											
Intersection V/C	0.207											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	Two-way stop	Delay (sec / veh):	621.0
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.035

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	104	2	25	0	200	170	436	214	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	19	0	0	0	16	0	22	11	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	123	2	25	0	216	170	458	225	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9670	0.9670	0.9670	1.0000	0.9670	0.9670	0.9670	0.9670	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	32	1	6	0	56	44	118	58	0
Total Analysis Volume [veh/h]	0	0	0	127	2	26	0	223	176	474	233	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	0			3			0			0		
Two-Stage Gap Acceptance				No								
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	1.99	0.03	0.03	0.00	0.00	0.00	0.41	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	614.67	621.04	9.61	0.00	0.00	0.00	10.23	0.00	0.00
Movement LOS				F	F	A		A	A	B	A	
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	12.14	12.14	0.10	0.00	0.00	0.00	4.35	4.35	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	303.49	303.49	2.50	0.00	0.00	0.00	108.78	108.78	0.00
d_A, Approach Delay [s/veh]	0.00			513.26			0.00			6.86		
Approach LOS	A			F			A			A		
d_I, Intersection Delay [s/veh]	66.94											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Two-way stop	Delay (sec / veh):	45.1
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	71	0	438	0	0	0	12	296	0	0	572	266
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	35	0	0	0	0	35	0	0	33	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	0	473	0	0	0	12	331	0	0	605	278
Peak Hour Factor	0.9450	0.9450	0.9450	1.0000	1.0000	1.0000	0.9450	0.9450	1.0000	1.0000	0.9450	0.9450
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	0	125	0	0	0	3	88	0	0	160	74
Total Analysis Volume [veh/h]	75	0	501	0	0	0	13	350	0	0	640	294
Pedestrian Volume [ped/h]	0			16			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	2			0			0			0		
Two-Stage Gap Acceptance	No											
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.44	0.00	0.72	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	42.40	45.12	22.50	0.00	0.00	0.00	10.15	0.00	0.00	0.00	0.00	0.00
Movement LOS	E	E	C				B	A			A	A
95th-Percentile Queue Length [veh]	2.04	2.04	6.21	0.00	0.00	0.00	2.93	2.93	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	51.12	51.12	155.24	0.00	0.00	0.00	73.13	73.13	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	25.09			0.00			0.36			0.00		
Approach LOS	D			A			A			A		
d_I, Intersection Delay [s/veh]	7.79											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 3: Grove Street/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	34.5
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.177

Intersection Setup

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	265.00	75.00	100.00	75.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

volumes

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	122	62	116	20	66	125	92	469	105	86	578	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	11	14	8	13	7	12	35	23	21	23	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	137	73	130	28	79	132	104	504	128	107	601	28
Peak Hour Factor	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	19	34	7	21	34	27	131	33	28	156	7
Total Analysis Volume [veh/h]	142	76	135	29	82	137	108	523	133	111	624	29
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	67
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	3	6	0	3	6	0
Maximum Green [s]	0	15	0	0	15	0	10	30	0	10	30	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	29	0	0	29	0	13	34	0	13	34	0
Vehicle Extension [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	8	0	0	8	0	0	8	0
Pedestrian Clearance [s]	0	16	0	0	15	0	0	9	0	0	8	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	C	L	C	R
L, Total Lost Time per Cycle [s]	3.60	3.60	3.60	3.00	4.00	4.00	3.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.60	1.60	1.00	2.00	2.00	1.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	25	6	25	25	6	25	25
g / C, Green / Cycle	0.38	0.38	0.38	0.08	0.38	0.38	0.09	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.53	0.09	0.34	0.07	0.20	0.20	0.07	0.37	0.02
s, saturation flow rate [veh/h]	414	1425	724	1597	1676	1561	1597	1676	1425
c, Capacity [veh/h]	245	536	333	133	636	593	137	640	544
d1, Uniform Delay [s]	23.32	14.39	16.87	30.18	16.16	16.17	30.09	20.38	13.06
k, delay calibration	0.50	0.04	0.36	0.04	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	35.04	0.09	10.51	4.38	3.18	3.43	4.27	29.84	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

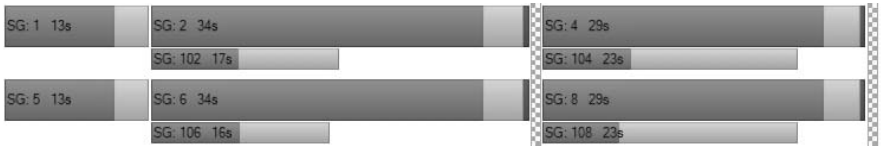
X, volume / capacity	0.89	0.25	0.75	0.81	0.53	0.53	0.81	0.97	0.05
d, Delay for Lane Group [s/veh]	58.36	14.48	27.38	34.56	19.34	19.61	34.36	50.22	13.25
Lane Group LOS	E	B	C	C	B	B	C	D	B
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	5.81	1.31	3.55	1.80	4.26	4.02	1.85	13.90	0.28
50th-Percentile Queue Length [ft]	145.26	32.76	88.64	45.09	106.40	100.45	46.21	347.49	7.10
95th-Percentile Queue Length [veh]	9.76	2.36	6.38	3.25	7.64	7.23	3.33	20.01	0.51
95th-Percentile Queue Length [ft]	244.09	58.97	159.56	81.17	190.98	180.81	83.17	500.35	12.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.36	58.36	14.48	27.38	27.38	27.38	34.56	19.43	19.61	34.36	50.22	13.25
Movement LOS	E	E	B	C	C	C	C	B	B	C	D	B
d_A, Approach Delay [s/veh]	41.58			27.38			21.60			46.52		
Approach LOS	D			C			C			D		
d_I, Intersection Delay [s/veh]	34.53											
Intersection LOS	C											
Intersection V/C	1.177											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Grove St/Chiquita Rd

Control Type:	Two-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.041

Intersection Setup

Name	Chiquita Rd		Grove St		Grove St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0
Pocket Length [ft]	50.00	100.00	75.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

volumes

Name	Chiquita Rd		Grove St		Grove St	
Base Volume Input [veh/h]	24	31	25	80	112	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	11	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	31	25	91	131	24
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	9	7	25	36	7
Total Analysis Volume [veh/h]	27	34	28	101	146	27
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.04	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.66	9.23	7.62	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.13	0.12	0.06	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	3.18	2.99	1.53	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.86		1.65		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.24					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Grove St/Healdsburg Ave

Control Type:	Signalized	Delay (sec / veh):	11.6
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.264

Intersection Setup

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	80.00	100.00	100.00	135.00	100.00	70.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

volumes

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Base Volume Input [veh/h]	58	272	2	0	340	113	105	2	22	1	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	6	0	0	3	17	9	0	2	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	278	2	0	343	130	114	2	24	1	1	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	77	1	0	95	36	32	1	7	0	0	0
Total Analysis Volume [veh/h]	67	309	2	0	381	144	127	2	27	1	1	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	18			0			4			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	3	6	0	3	6	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	15	30	0	0	20	0	0	15	0
Amber [s]	3.0	3.7	0.0	3.0	3.7	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	1.0	0.0
Split [s]	21	35	0	6	20	0	0	19	0	0	20	0
Vehicle Extension [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.1	0.0	1.0	2.1	0.0	0.0	1.6	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
L, Total Lost Time per Cycle [s]	3.00	4.10	4.10	3.00	4.10	4.10	3.60	3.60	3.60	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	2.10	2.10	1.00	2.10	2.10	1.60	1.60	1.60	2.20
g_i, Effective Green Time [s]	4	60	60	0	57	57	4	4	4	0
g / C, Green / Cycle	0.05	0.76	0.76	0.00	0.71	0.71	0.05	0.05	0.05	0.00
(v / s)_i Volume / Saturation Flow Rate	0.04	0.08	0.08	0.00	0.15	0.15	0.04	0.04	0.02	0.00
s, saturation flow rate [veh/h]	1774	1863	1859	1774	1863	1689	1774	1777	1428	1817
c, Capacity [veh/h]	88	1406	1403	1	1314	1192	98	98	79	6
d1, Uniform Delay [s]	37.59	2.63	2.63	0.00	4.07	4.08	37.11	37.11	36.45	39.83
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.91	0.16	0.16	0.00	0.36	0.41	2.79	2.78	0.95	10.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

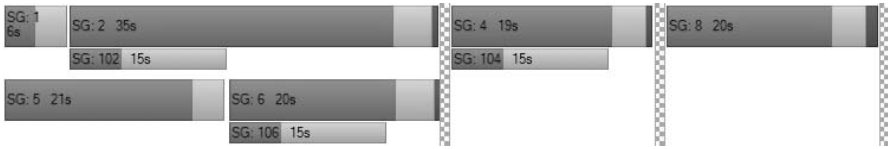
X, volume / capacity	0.76	0.11	0.11	0.00	0.21	0.21	0.66	0.66	0.34	0.32
d, Delay for Lane Group [s/veh]	42.50	2.79	2.79	0.00	4.42	4.49	39.89	39.88	37.40	50.15
Lane Group LOS	D	A	A	A	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.38	0.46	0.46	0.00	1.22	1.15	1.27	1.27	0.51	0.06
50th-Percentile Queue Length [ft]	34.41	11.42	11.40	0.00	30.45	28.63	31.85	31.87	12.84	1.41
95th-Percentile Queue Length [veh]	2.48	0.82	0.82	0.00	2.19	2.06	2.29	2.29	0.92	0.10
95th-Percentile Queue Length [ft]	61.93	20.55	20.53	0.00	54.81	51.54	57.33	57.37	23.11	2.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.50	2.79	2.79	0.00	4.44	4.49	39.89	39.88	37.40	50.15	50.15	50.15
Movement LOS	D	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	9.83			4.45			39.46			50.15		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	11.60											
Intersection LOS	B											
Intersection V/C	0.264											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	35.3
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.533

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	144	4	10	0	123	134	468	198	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	144	4	10	0	123	134	468	198	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	36	1	3	0	31	34	117	50	0
Total Analysis Volume [veh/h]	0	0	0	144	4	10	0	123	134	468	198	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	5	0	5	5	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	25	0	0	25	0	70	95	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		13	13	58	58	37	99
g / C, Green / Cycle		0.11	0.11	0.48	0.48	0.31	0.82
(v / s)_i Volume / Saturation Flow Rate		0.09	0.01	0.07	0.09	0.29	0.12
s, saturation flow rate [veh/h]		1599	1425	1676	1425	1597	1676
c, Capacity [veh/h]		174	155	804	684	497	1383
d1, Uniform Delay [s]		52.52	48.00	17.51	17.91	40.22	2.09
k, delay calibration		0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		11.07	0.17	0.40	0.64	9.25	0.22
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

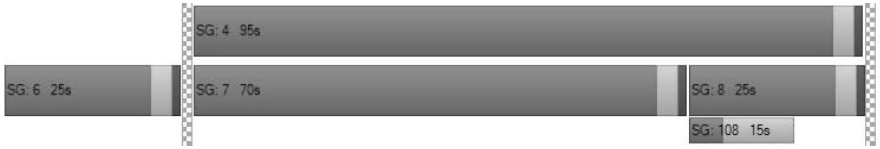
X, volume / capacity		0.85	0.06	0.15	0.20	0.94	0.14
d, Delay for Lane Group [s/veh]		63.59	48.17	17.92	18.55	49.47	2.31
Lane Group LOS		E	D	B	B	D	A
Critical Lane Group		Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		4.91	0.28	2.01	2.26	14.55	0.75
50th-Percentile Queue Length [ft]		122.72	6.94	50.24	56.52	363.84	18.69
95th-Percentile Queue Length [veh]		8.54	0.50	3.62	4.07	20.81	1.35
95th-Percentile Queue Length [ft]		213.56	12.49	90.44	101.73	520.25	33.65

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	63.59	63.59	48.17	0.00	17.92	18.55	49.47	2.31	0.00
Movement LOS				E	E	D		B	B	D	A	
d_A, Approach Delay [s/veh]	0.00			62.61			18.25			35.45		
Approach LOS	A			E			B			D		
d_I, Intersection Delay [s/veh]	35.33											
Intersection LOS	D											
Intersection V/C	0.533											

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Signalized	Delay (sec / veh):	36.1
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.789

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	55.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	115	0	686	0	0	0	10	257	0	0	553	143
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	115	0	686	0	0	0	10	257	0	0	553	143
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	0	172	0	0	0	3	64	0	0	138	36
Total Analysis Volume [veh/h]	115	0	686	0	0	0	10	257	0	0	553	143
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	80	0	0	0	0	9	40	0	0	31	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R		L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	60	60		1	52	46	46
g / C, Green / Cycle	0.50	0.50		0.01	0.43	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.07	0.48		0.01	0.15	0.21	0.22
s, saturation flow rate [veh/h]	1597	1425		1597	1676	1676	1563
c, Capacity [veh/h]	798	712		19	727	651	607
d1, Uniform Delay [s]	16.17	28.93		58.94	22.75	28.34	28.89
k, delay calibration	0.11	0.30		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.08	18.48		20.63	1.35	3.13	3.91
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.96		0.53	0.35	0.53	0.57
d, Delay for Lane Group [s/veh]	16.25	47.41		79.57	24.10	31.48	32.80
Lane Group LOS	B	D		E	C	C	C
Critical Lane Group	No	Yes		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.72	21.86		0.41	5.14	8.27	8.51
50th-Percentile Queue Length [ft]	43.09	546.47		10.29	128.41	206.64	212.69
95th-Percentile Queue Length [veh]	3.10	29.53		0.74	8.85	12.98	13.29
95th-Percentile Queue Length [ft]	77.56	738.16		18.52	221.34	324.52	332.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.25	16.25	47.41	0.00	0.00	0.00	79.57	24.10	0.00	0.00	31.97	32.80
Movement LOS	B	B	D				E	C			C	C
d_A, Approach Delay [s/veh]	42.93			0.00			26.18			32.14		
Approach LOS	D			A			C			C		
d_I, Intersection Delay [s/veh]	36.14											
Intersection LOS	D											
Intersection V/C	0.789											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Grove Street/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	27.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.695

Intersection Setup

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	265.00	75.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

volumes

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	84	58	48	27	75	199	211	654	133	63	523	71
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	58	48	27	75	199	211	654	133	63	523	71
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	15	12	7	19	50	53	164	33	16	131	18
Total Analysis Volume [veh/h]	84	58	48	27	75	199	211	654	133	63	523	71
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	67
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	3	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	6	0	0	6	0	3	6	0	3	6	0
Maximum Green [s]	30	15	0	0	15	0	10	30	0	10	30	0
Amber [s]	3.0	3.2	0.0	0.0	3.2	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	1.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	9	35	0	0	26	0	12	22	0	10	20	0
Vehicle Extension [s]	3.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	8	0	0	8	0	0	8	0
Pedestrian Clearance [s]	0	16	0	0	15	0	0	9	0	0	8	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	1.6	0.0	0.0	1.6	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Minimum Recall	No	No			No		No	No		No	No	
Maximum Recall	No	No			No		No	No		No	No	
Pedestrian Recall	No	No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C
L, Total Lost Time per Cycle [s]	4.00	3.60	3.60	3.00	4.00	4.00	3.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	1.60	1.60	1.00	2.00	2.00	1.00	2.00	2.00
g_i, Effective Green Time [s]	4	24	15	9	30	30	3	24	24
g / C, Green / Cycle	0.06	0.35	0.23	0.13	0.44	0.44	0.05	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.05	0.07	0.20	0.13	0.24	0.24	0.04	0.18	0.18
s, saturation flow rate [veh/h]	1597	1552	1470	1597	1676	1579	1597	1676	1607
c, Capacity [veh/h]	104	548	394	214	740	697	76	595	570
d1, Uniform Delay [s]	30.92	15.07	25.05	28.94	13.80	13.80	31.63	17.03	17.04
k, delay calibration	0.11	0.04	0.09	0.39	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.91	0.06	2.71	50.75	2.91	3.08	8.00	3.09	3.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.19	0.76	0.98	0.55	0.55	0.82	0.51	0.51
d, Delay for Lane Group [s/veh]	44.83	15.13	27.75	79.69	16.71	16.89	39.63	20.12	20.29
Lane Group LOS	D	B	C	E	B	B	D	C	C
Critical Lane Group	Yes	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	1.69	1.05	4.64	6.24	4.61	4.38	1.14	3.88	3.76
50th-Percentile Queue Length [ft]	42.24	26.31	115.90	155.98	115.36	109.54	28.58	97.03	94.09
95th-Percentile Queue Length [veh]	3.04	1.89	8.17	10.34	8.14	7.81	2.06	6.99	6.77
95th-Percentile Queue Length [ft]	76.03	47.35	204.17	258.39	203.43	195.36	51.45	174.65	169.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.83	15.13	15.13	27.75	27.75	27.75	79.69	16.78	16.89	39.63	20.19	20.29
Movement LOS	D	B	B	C	C	C	E	B	B	D	C	C
d_A, Approach Delay [s/veh]	28.26			27.75			30.10			22.07		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	27.15											
Intersection LOS	C											
Intersection V/C	0.695											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Grove St/Chiquita Rd

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.044

Intersection Setup

Name	Chiquita Rd		Grove St		Grove St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0
Pocket Length [ft]	50.00	100.00	75.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

volumes

Name	Chiquita Rd		Grove St		Grove St	
Base Volume Input [veh/h]	31	25	26	66	154	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	25	26	66	154	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	6	7	17	39	4
Total Analysis Volume [veh/h]	31	25	26	66	154	15
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane						
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.03	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.40	9.19	7.60	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.14	0.09	0.06	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	3.48	2.18	1.41	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.86		2.15		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.37					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Grove St/Healdsburg Ave

Control Type:	Signalized	Delay (sec / veh):	7.4
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.220

Intersection Setup

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	80.00	100.00	100.00	135.00	100.00	70.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

volumes

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Base Volume Input [veh/h]	36	430	1	3	376	142	54	3	13	1	4	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	430	1	3	376	142	54	3	13	1	4	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	108	0	1	94	36	14	1	3	0	1	0
Total Analysis Volume [veh/h]	36	430	1	3	376	142	54	3	13	1	4	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	41			0			7			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	3	6	0	3	6	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	15	30	0	0	20	0	0	15	0
Amber [s]	3.0	3.7	0.0	3.0	3.7	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	1.0	0.0
Split [s]	21	35	0	6	20	0	0	19	0	0	20	0
Vehicle Extension [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.1	0.0	1.0	2.1	0.0	0.0	1.6	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
L, Total Lost Time per Cycle [s]	3.00	4.10	4.10	3.00	4.10	4.10	3.60	3.60	3.60	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	2.10	2.10	1.00	2.10	2.10	1.60	1.60	1.60	2.20
g_i, Effective Green Time [s]	2	61	61	0	59	59	3	3	3	1
g / C, Green / Cycle	0.03	0.77	0.77	0.00	0.74	0.74	0.04	0.04	0.04	0.01
(v / s)_i Volume / Saturation Flow Rate	0.02	0.12	0.12	0.00	0.14	0.15	0.02	0.02	0.01	0.00
s, saturation flow rate [veh/h]	1774	1863	1861	1774	1863	1688	1774	1783	1103	1844
c, Capacity [veh/h]	47	1425	1424	6	1381	1252	69	69	43	14
d1, Uniform Delay [s]	38.76	2.50	2.50	39.87	3.13	3.14	37.62	37.62	37.46	39.58
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.38	0.23	0.23	26.26	0.31	0.36	1.48	1.47	1.48	6.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

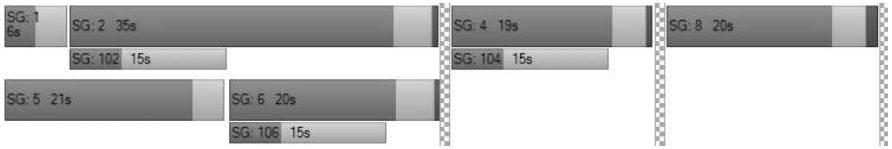
X, volume / capacity	0.77	0.15	0.15	0.54	0.19	0.20	0.42	0.41	0.30	0.37
d, Delay for Lane Group [s/veh]	48.13	2.73	2.73	66.13	3.44	3.49	39.11	39.09	38.94	45.70
Lane Group LOS	D	A	A	E	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	0.80	0.60	0.60	0.10	0.94	0.89	0.56	0.56	0.26	0.12
50th-Percentile Queue Length [ft]	20.10	14.99	14.98	2.45	23.46	22.13	13.93	13.95	6.45	2.95
95th-Percentile Queue Length [veh]	1.45	1.08	1.08	0.18	1.69	1.59	1.00	1.00	0.46	0.21
95th-Percentile Queue Length [ft]	36.17	26.98	26.97	4.42	42.23	39.83	25.08	25.10	11.61	5.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.13	2.73	2.73	66.13	3.46	3.49	39.10	39.09	38.94	45.70	45.70	45.70
Movement LOS	D	A	A	E	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	6.23			3.83			39.07			45.70		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	7.40											
Intersection LOS	A											
Intersection V/C	0.220											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	32.9
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.790

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	161	3	26	0	204	190	717	217	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	161	3	26	0	204	190	717	217	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	40	1	7	0	51	48	179	54	0
Total Analysis Volume [veh/h]	0	0	0	161	3	26	0	204	190	717	217	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	5	0	5	5	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	39	0	0	19	0	32	51	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		11	11	24	24	42	71
g / C, Green / Cycle		0.13	0.13	0.27	0.27	0.47	0.79
(v / s)_i Volume / Saturation Flow Rate		0.10	0.02	0.12	0.13	0.45	0.13
s, saturation flow rate [veh/h]		1598	1425	1676	1425	1597	1676
c, Capacity [veh/h]		202	180	452	384	752	1316
d1, Uniform Delay [s]		38.31	35.01	27.33	27.70	22.89	2.39
k, delay calibration		0.11	0.11	0.50	0.50	0.31	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		7.69	0.37	3.23	4.49	16.85	0.27
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.81	0.14	0.45	0.49	0.95	0.16
d, Delay for Lane Group [s/veh]		45.99	35.38	30.56	32.18	39.75	2.66
Lane Group LOS		D	D	C	C	D	A
Critical Lane Group		Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		3.90	0.52	3.98	3.85	16.96	0.72
50th-Percentile Queue Length [ft]		97.45	13.02	99.52	96.34	423.99	17.97
95th-Percentile Queue Length [veh]		7.02	0.94	7.17	6.94	23.71	1.29
95th-Percentile Queue Length [ft]		175.41	23.43	179.13	173.42	592.83	32.34

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	45.99	45.99	35.38	0.00	30.56	32.18	39.75	2.66	0.00
Movement LOS				D	D	D		C	C	D	A	
d_A, Approach Delay [s/veh]	0.00			44.54			31.34			31.13		
Approach LOS	A			D			C			C		
d_I, Intersection Delay [s/veh]	32.87											
Intersection LOS	C											
Intersection V/C	0.790											

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Signalized	Delay (sec / veh):	51.9
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.974

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	87	0	686	0	0	0	12	363	0	0	843	325
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	0	686	0	0	0	12	363	0	0	843	325
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	0	172	0	0	0	3	91	0	0	211	81
Total Analysis Volume [veh/h]	87	0	686	0	0	0	12	363	0	0	843	325
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			16			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	64	0	0	0	0	9	56	0	0	47	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R		L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	59	59		2	53	47	47
g / C, Green / Cycle	0.49	0.49		0.01	0.44	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.05	0.48		0.01	0.22	0.35	0.39
s, saturation flow rate [veh/h]	1597	1425		1597	1676	1676	1508
c, Capacity [veh/h]	785	701		22	740	661	595
d1, Uniform Delay [s]	16.39	29.88		58.79	23.88	33.77	35.92
k, delay calibration	0.11	0.45		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.06	27.39		19.12	2.32	15.84	32.76
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

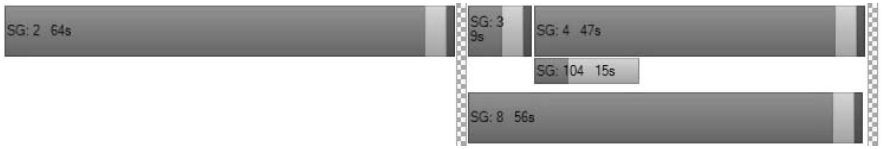
X, volume / capacity	0.11	0.98		0.54	0.49	0.88	0.98
d, Delay for Lane Group [s/veh]	16.45	57.27		77.90	26.20	49.61	68.67
Lane Group LOS	B	E		E	C	D	E
Critical Lane Group	No	Yes		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.31	23.91		0.48	7.77	18.42	21.91
50th-Percentile Queue Length [ft]	32.65	597.85		12.00	194.20	460.50	547.71
95th-Percentile Queue Length [veh]	2.35	31.93		0.86	12.34	25.46	29.58
95th-Percentile Queue Length [ft]	58.77	798.35		21.60	308.47	636.47	739.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.45	16.45	57.27	0.00	0.00	0.00	77.90	26.20	0.00	0.00	55.46	68.67
Movement LOS	B	B	E				E	C			E	E
d_A, Approach Delay [s/veh]	52.67			0.00			27.85			59.14		
Approach LOS	D			A			C			E		
d_I, Intersection Delay [s/veh]	51.92											
Intersection LOS	D											
Intersection V/C	0.974											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Grove Street/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	44.4
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.900

Intersection Setup

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	265.00	75.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

volumes

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	135	107	128	42	119	267	203	660	125	96	765	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	135	107	128	42	119	267	203	660	125	96	765	49
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	27	32	11	30	67	51	165	31	24	191	12
Total Analysis Volume [veh/h]	135	107	128	42	119	267	203	660	125	96	765	49
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	3	8	1	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	6	3	0	6	3	3	6	0	3	6	0
Maximum Green [s]	30	15	10	0	15	10	10	30	0	10	30	0
Amber [s]	3.0	3.2	3.0	0.0	3.2	3.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	1.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	12	41	12	0	29	14	14	27	0	12	25	0
Vehicle Extension [s]	3.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	8	0	0	8	0	0	8	0
Pedestrian Clearance [s]	0	16	0	0	15	0	0	9	0	0	8	0
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	1.6	1.0	0.0	1.6	1.0	1.0	2.0	0.0	1.0	2.0	0.0
Minimum Recall	No	No			No		No	No		No	No	
Maximum Recall	No	No			No		No	No		No	No	
Pedestrian Recall	No	No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C
L, Total Lost Time per Cycle [s]	4.00	3.60	3.60	3.00	4.00	4.00	3.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	1.60	1.60	1.00	2.00	2.00	1.00	2.00	2.00
g_i, Effective Green Time [s]	8	37	25	11	26	26	6	21	21
g / C, Green / Cycle	0.10	0.47	0.32	0.14	0.33	0.33	0.07	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.08	0.15	0.31	0.13	0.24	0.24	0.06	0.25	0.25
s, saturation flow rate [veh/h]	1597	1529	1389	1597	1676	1585	1597	1676	1641
c, Capacity [veh/h]	160	712	487	220	550	520	119	444	434
d1, Uniform Delay [s]	35.39	13.51	27.09	34.09	23.79	23.79	36.47	28.65	28.66
k, delay calibration	0.25	0.04	0.42	0.36	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	22.87	0.10	17.07	35.42	8.44	8.89	4.88	27.82	28.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

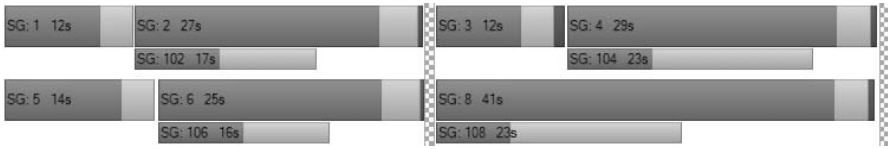
X, volume / capacity	0.85	0.33	0.88	0.92	0.73	0.73	0.81	0.93	0.93
d, Delay for Lane Group [s/veh]	58.27	13.61	44.16	69.51	32.23	32.69	41.35	56.48	56.90
Lane Group LOS	E	B	D	E	C	C	D	E	E
Critical Lane Group	Yes	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	3.54	2.51	9.95	5.95	7.71	7.35	1.97	10.78	10.60
50th-Percentile Queue Length [ft]	88.46	62.79	248.78	148.67	192.65	183.77	49.18	269.42	265.05
95th-Percentile Queue Length [veh]	6.37	4.52	15.12	9.95	12.26	11.80	3.54	16.16	15.94
95th-Percentile Queue Length [ft]	159.23	113.02	378.12	248.65	306.46	294.93	88.53	404.02	398.55

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.27	13.61	13.61	44.16	44.16	44.16	69.51	32.41	32.69	41.35	56.67	56.90
Movement LOS	E	B	B	D	D	D	E	C	C	D	E	E
d_A, Approach Delay [s/veh]	29.91			44.16			40.07			55.07		
Approach LOS	C			D			D			E		
d_I, Intersection Delay [s/veh]	44.39											
Intersection LOS	D											
Intersection V/C	0.900											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Grove St/Chiquita Rd

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.039

Intersection Setup

Name	Chiquita Rd		Grove St		Grove St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0
Pocket Length [ft]	50.00	100.00	75.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

volumes

Name	Chiquita Rd		Grove St		Grove St	
Base Volume Input [veh/h]	25	31	25	127	153	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	31	25	127	153	24
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	8	6	32	38	6
Total Analysis Volume [veh/h]	25	31	25	127	153	24
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane						
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.04	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.83	9.24	7.62	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.12	0.11	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	3.03	2.74	1.36	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.95		1.25		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.94					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Grove St/Healdsburg Ave

Control Type:	Signalized	Delay (sec / veh):	10.2
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.338

Intersection Setup

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	80.00	100.00	100.00	135.00	100.00	70.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

volumes

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Base Volume Input [veh/h]	63	490	2	0	597	148	150	2	25	1	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	63	490	2	0	597	148	150	2	25	1	1	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	123	1	0	149	37	38	1	6	0	0	0
Total Analysis Volume [veh/h]	63	490	2	0	597	148	150	2	25	1	1	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	18			0			4			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	3	6	0	3	6	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	15	30	0	0	20	0	0	15	0
Amber [s]	3.0	3.7	0.0	3.0	3.7	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	1.0	0.0
Split [s]	21	35	0	6	20	0	0	19	0	0	20	0
Vehicle Extension [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.1	0.0	1.0	2.1	0.0	0.0	1.6	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
L, Total Lost Time per Cycle [s]	3.00	4.10	4.10	3.00	4.10	4.10	3.60	3.60	3.60	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	2.10	2.10	1.00	2.10	2.10	1.60	1.60	1.60	2.20
g_i, Effective Green Time [s]	4	60	60	0	56	56	5	5	5	0
g / C, Green / Cycle	0.05	0.75	0.75	0.00	0.70	0.70	0.06	0.06	0.06	0.00
(v / s)_i Volume / Saturation Flow Rate	0.04	0.13	0.13	0.00	0.21	0.21	0.04	0.04	0.02	0.00
s, saturation flow rate [veh/h]	1774	1863	1860	1774	1863	1735	1774	1776	1444	1817
c, Capacity [veh/h]	83	1394	1392	1	1309	1219	109	109	88	6
d1, Uniform Delay [s]	37.74	2.92	2.92	0.00	4.47	4.47	36.88	36.88	35.93	39.83
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.20	0.28	0.28	0.00	0.57	0.62	3.02	3.01	0.64	10.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

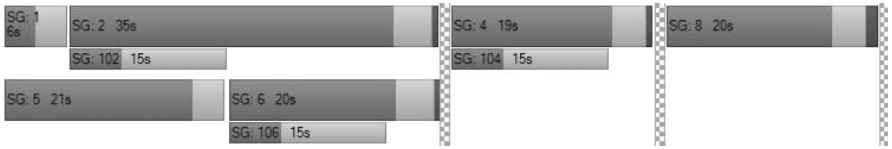
X, volume / capacity	0.76	0.18	0.18	0.00	0.29	0.30	0.70	0.70	0.28	0.32
d, Delay for Lane Group [s/veh]	42.94	3.19	3.19	0.00	5.04	5.09	39.90	39.89	36.57	50.15
Lane Group LOS	D	A	A	A	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.30	0.80	0.80	0.00	1.89	1.79	1.50	1.50	0.47	0.06
50th-Percentile Queue Length [ft]	32.56	20.10	20.08	0.00	47.32	44.71	37.55	37.57	11.70	1.41
95th-Percentile Queue Length [veh]	2.34	1.45	1.45	0.00	3.41	3.22	2.70	2.71	0.84	0.10
95th-Percentile Queue Length [ft]	58.61	36.17	36.14	0.00	85.18	80.47	67.59	67.63	21.06	2.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.94	3.19	3.19	0.00	5.06	5.09	39.90	39.89	36.57	50.15	50.15	50.15
Movement LOS	D	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	7.71			5.07			39.43			50.15		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.23											
Intersection LOS	B											
Intersection V/C	0.338											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	Two-way stop	Delay (sec / veh):	204.0
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	132	2	7	0	111	62	359	198	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	10	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	132	2	7	0	111	62	369	199	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9150	0.9150	0.9150	1.0000	0.9150	0.9150	0.9150	0.9150	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	36	1	2	0	30	17	101	54	0
Total Analysis Volume [veh/h]	0	0	0	144	2	8	0	121	68	403	217	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	0			3			0			0		
Two-Stage Gap Acceptance				No								
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	1.16	0.02	0.01	0.00	0.00	0.00	0.29	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	203.31	204.02	9.42	0.00	0.00	0.00	8.66	0.00	0.00
Movement LOS				F	F	A		A	A	A	A	
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	8.88	8.88	0.03	0.00	0.00	0.00	2.37	2.37	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	222.09	222.09	0.74	0.00	0.00	0.00	59.31	59.31	0.00
d_A, Approach Delay [s/veh]	0.00			193.24			0.00			5.63		
Approach LOS	A			F			A			A		
d_I, Intersection Delay [s/veh]	34.53											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Two-way stop	Delay (sec / veh):	28.0
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	55.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	107	0	434	0	0	0	10	230	0	0	455	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	3	0	0	0	0	0	0	0	11	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	0	437	0	0	0	10	230	0	0	466	107
Peak Hour Factor	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	0	121	0	0	0	3	64	0	0	129	30
Total Analysis Volume [veh/h]	119	0	486	0	0	0	11	256	0	0	518	119
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	2			0			0			0		
Two-Stage Gap Acceptance	No											
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.43	0.00	0.62	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	27.69	27.99	16.83	0.00	0.00	0.00	8.85	0.00	0.00	0.00	0.00	0.00
Movement LOS	D	D	C				A	A			A	A
95th-Percentile Queue Length [veh]	2.07	2.07	4.39	0.00	0.00	0.00	1.16	1.16	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	51.68	51.68	109.86	0.00	0.00	0.00	29.07	29.07	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.97			0.00			0.36			0.00		
Approach LOS	C			A			A			A		
d_I, Intersection Delay [s/veh]	7.67											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 3: Grove Street/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	24.4
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.916

Intersection Setup

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	265.00	75.00	100.00	75.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

volumes

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	83	42	48	21	64	148	111	497	111	60	434	43
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	0	2	11	3	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	43	48	21	66	159	114	497	111	60	434	43
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	12	13	6	18	44	32	138	31	17	121	12
Total Analysis Volume [veh/h]	92	48	53	23	73	177	127	552	123	67	482	48
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	67
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	3	6	0	3	6	0
Maximum Green [s]	0	15	0	0	15	0	10	30	0	10	30	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	29	0	0	29	0	13	34	0	13	34	0
Vehicle Extension [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	8	0	0	8	0	0	8	0
Pedestrian Clearance [s]	0	16	0	0	15	0	0	9	0	0	8	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	C	L	C	R
L, Total Lost Time per Cycle [s]	3.60	3.60	3.60	3.00	4.00	4.00	3.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.60	1.60	1.00	2.00	2.00	1.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	25	7	28	28	3	25	25
g / C, Green / Cycle	0.38	0.38	0.38	0.10	0.41	0.41	0.05	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.38	0.04	0.35	0.08	0.21	0.21	0.04	0.29	0.03
s, saturation flow rate [veh/h]	364	1425	789	1597	1676	1572	1597	1676	1425
c, Capacity [veh/h]	226	537	356	156	694	651	81	615	523
d1, Uniform Delay [s]	19.28	13.50	16.96	29.63	14.53	14.53	31.50	18.84	13.89
k, delay calibration	0.46	0.04	0.37	0.04	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.12	0.03	11.13	3.85	2.58	2.76	7.56	9.63	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

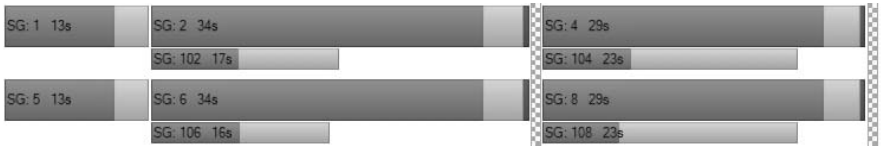
X, volume / capacity	0.62	0.10	0.77	0.81	0.50	0.50	0.82	0.78	0.09
d, Delay for Lane Group [s/veh]	30.40	13.53	28.09	33.48	17.11	17.29	39.05	28.47	14.24
Lane Group LOS	C	B	C	C	B	B	D	C	B
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.60	0.48	4.00	2.09	4.03	3.82	1.20	7.68	0.49
50th-Percentile Queue Length [ft]	65.05	12.07	99.97	52.14	100.76	95.51	30.11	191.94	12.33
95th-Percentile Queue Length [veh]	4.68	0.87	7.20	3.75	7.26	6.88	2.17	12.22	0.89
95th-Percentile Queue Length [ft]	117.08	21.73	179.95	93.86	181.38	171.91	54.19	305.54	22.20

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	30.40	30.40	13.53	28.09	28.09	28.09	33.48	17.18	17.29	39.05	28.47	14.24
Movement LOS	C	C	B	C	C	C	C	B	B	D	C	B
d_A, Approach Delay [s/veh]	25.77			28.09			19.78			28.51		
Approach LOS	C			C			B			C		
d_I, Intersection Delay [s/veh]	24.41											
Intersection LOS	C											
Intersection V/C	0.916											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Grove St/Chiquita Rd

Control Type:	Two-way stop	Delay (sec / veh):	10.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.063

Intersection Setup

Name	Chiquita Rd		Grove St		Grove St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0
Pocket Length [ft]	50.00	100.00	75.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

volumes

Name	Chiquita Rd		Grove St		Grove St	
Base Volume Input [veh/h]	29	24	25	57	126	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	13	4	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	37	29	57	126	15
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	10	8	16	35	4
Total Analysis Volume [veh/h]	44	41	32	63	140	17
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane						
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.05	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.50	9.20	7.59	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.20	0.14	0.07	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	5.03	3.58	1.72	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.87		2.56		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.21					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Grove St/Healdsburg Ave

Control Type:	Signalized	Delay (sec / veh):	9.2
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.207

Intersection Setup

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	80.00	100.00	100.00	135.00	100.00	70.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

volumes

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Base Volume Input [veh/h]	36	224	1	3	292	115	43	3	13	1	4	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	0	0	1	4	0	7	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	224	1	3	292	116	47	3	20	1	4	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	62	0	1	81	32	13	1	6	0	1	0
Total Analysis Volume [veh/h]	42	249	1	3	324	129	52	3	22	1	4	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	41			0			7			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	3	6	0	3	6	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	15	30	0	0	20	0	0	15	0
Amber [s]	3.0	3.7	0.0	3.0	3.7	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	1.0	0.0
Split [s]	21	35	0	6	20	0	0	19	0	0	20	0
Vehicle Extension [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.1	0.0	1.0	2.1	0.0	0.0	1.6	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
L, Total Lost Time per Cycle [s]	3.00	4.10	4.10	3.00	4.10	4.10	3.60	3.60	3.60	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	2.10	2.10	1.00	2.10	2.10	1.60	1.60	1.60	2.20
g_i, Effective Green Time [s]	2	61	61	0	59	59	3	3	3	1
g / C, Green / Cycle	0.03	0.76	0.76	0.00	0.73	0.73	0.04	0.04	0.04	0.01
(v / s)_i Volume / Saturation Flow Rate	0.02	0.07	0.07	0.00	0.13	0.13	0.02	0.02	0.02	0.00
s, saturation flow rate [veh/h]	1774	1863	1860	1774	1863	1682	1774	1783	1127	1844
c, Capacity [veh/h]	55	1417	1415	6	1365	1233	76	76	48	14
d1, Uniform Delay [s]	38.53	2.46	2.46	39.87	3.27	3.28	37.29	37.29	37.44	39.58
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.93	0.12	0.12	26.26	0.27	0.31	1.08	1.07	2.50	6.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

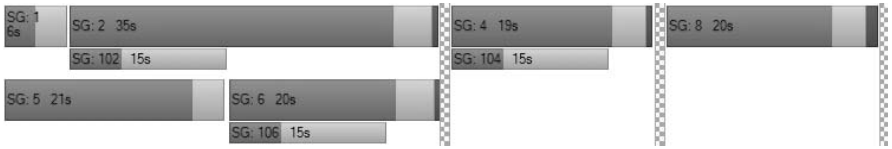
X, volume / capacity	0.76	0.09	0.09	0.54	0.17	0.18	0.36	0.36	0.46	0.37
d, Delay for Lane Group [s/veh]	46.46	2.58	2.58	66.13	3.54	3.59	38.37	38.35	39.94	45.70
Lane Group LOS	D	A	A	E	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes
50th-Percentile Queue Length [veh]	0.91	0.34	0.34	0.10	0.85	0.81	0.53	0.53	0.44	0.12
50th-Percentile Queue Length [ft]	22.87	8.53	8.52	2.45	21.35	20.21	13.26	13.28	11.04	2.95
95th-Percentile Queue Length [veh]	1.65	0.61	0.61	0.18	1.54	1.46	0.95	0.96	0.79	0.21
95th-Percentile Queue Length [ft]	41.17	15.35	15.34	4.42	38.42	36.38	23.87	23.90	19.87	5.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.46	2.58	2.58	66.13	3.55	3.59	38.36	38.35	39.94	45.70	45.70	45.70
Movement LOS	D	A	A	E	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	8.89			3.98			38.81			45.70		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	9.19											
Intersection LOS	A											
Intersection V/C	0.207											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	Two-way stop	Delay (sec / veh):	390.2
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	104	2	25	0	200	170	436	214	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	1	0	5	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	104	2	25	0	201	170	441	215	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9670	0.9670	0.9670	1.0000	0.9670	0.9670	0.9670	0.9670	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	27	1	6	0	52	44	114	56	0
Total Analysis Volume [veh/h]	0	0	0	108	2	26	0	208	176	456	222	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	0			3			0			0		
Two-Stage Gap Acceptance				No								
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	1.48	0.03	0.03	0.00	0.00	0.00	0.39	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	384.86	390.24	9.55	0.00	0.00	0.00	10.00	0.00	0.00
Movement LOS				F	F	A		A	A	A	A	
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	9.15	9.15	0.10	0.00	0.00	0.00	3.86	3.86	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	228.70	228.70	2.46	0.00	0.00	0.00	96.43	96.43	0.00
d_A, Approach Delay [s/veh]	0.00			313.19			0.00			6.72		
Approach LOS	A			F			A			A		
d_I, Intersection Delay [s/veh]	39.36											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Two-way stop	Delay (sec / veh):	38.6
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	71	0	438	0	0	0	12	296	0	0	572	266
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	10	0	0	0	0	1	0	0	6	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	0	448	0	0	0	12	297	0	0	578	266
Peak Hour Factor	0.9450	0.9450	0.9450	1.0000	1.0000	1.0000	0.9450	0.9450	1.0000	1.0000	0.9450	0.9450
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	0	119	0	0	0	3	79	0	0	153	70
Total Analysis Volume [veh/h]	75	0	474	0	0	0	13	314	0	0	612	281
Pedestrian Volume [ped/h]	0			16			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	2			0			0			0		
Two-Stage Gap Acceptance	No											
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.40	0.00	0.65	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	36.12	38.65	18.77	0.00	0.00	0.00	9.97	0.00	0.00	0.00	0.00	0.00
Movement LOS	E	E	C				A	A			A	A
95th-Percentile Queue Length [veh]	1.76	1.76	4.88	0.00	0.00	0.00	2.29	2.29	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	44.02	44.02	122.00	0.00	0.00	0.00	57.18	57.18	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	21.14			0.00			0.40			0.00		
Approach LOS	C			A			A			A		
d_I, Intersection Delay [s/veh]	6.63											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 3: Grove Street/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	30.5
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.146

Intersection Setup

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	265.00	75.00	100.00	75.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

volumes

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	122	62	116	20	66	125	92	469	105	86	578	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	0	2	6	11	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	122	65	116	20	68	131	103	469	105	86	578	24
Peak Hour Factor	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	17	30	5	18	34	27	122	27	22	150	6
Total Analysis Volume [veh/h]	127	67	120	21	71	136	107	487	109	89	600	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	67
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	3	6	0	3	6	0
Maximum Green [s]	0	15	0	0	15	0	10	30	0	10	30	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	29	0	0	29	0	13	34	0	13	34	0
Vehicle Extension [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	8	0	0	8	0	0	8	0
Pedestrian Clearance [s]	0	16	0	0	15	0	0	9	0	0	8	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	C	L	C	R
L, Total Lost Time per Cycle [s]	3.60	3.60	3.60	3.00	4.00	4.00	3.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.60	1.60	1.00	2.00	2.00	1.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	25	6	26	26	5	26	26
g / C, Green / Cycle	0.38	0.38	0.38	0.08	0.39	0.39	0.07	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.52	0.08	0.28	0.07	0.18	0.18	0.06	0.36	0.02
s, saturation flow rate [veh/h]	376	1425	822	1597	1676	1572	1597	1676	1425
c, Capacity [veh/h]	231	538	369	132	663	622	110	639	544
d1, Uniform Delay [s]	22.91	14.17	16.27	30.21	14.99	15.00	30.77	19.96	13.05
k, delay calibration	0.50	0.04	0.21	0.04	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	29.18	0.08	3.29	4.41	2.32	2.49	5.31	23.28	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

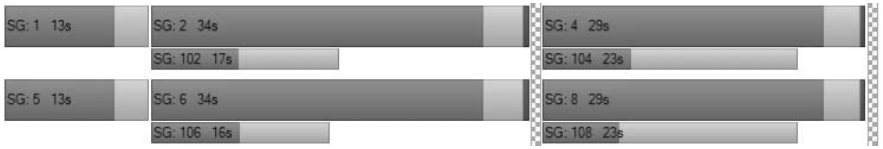
X, volume / capacity	0.84	0.22	0.62	0.81	0.46	0.47	0.81	0.94	0.05
d, Delay for Lane Group [s/veh]	52.09	14.25	19.57	34.62	17.30	17.49	36.08	43.25	13.21
Lane Group LOS	D	B	B	C	B	B	D	D	B
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	4.92	1.15	2.67	1.79	3.57	3.40	1.52	12.21	0.24
50th-Percentile Queue Length [ft]	123.06	28.74	66.71	44.73	89.37	84.99	38.09	305.28	6.10
95th-Percentile Queue Length [veh]	8.56	2.07	4.80	3.22	6.43	6.12	2.74	17.94	0.44
95th-Percentile Queue Length [ft]	214.02	51.73	120.07	80.51	160.87	152.98	68.56	448.55	10.98

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.09	52.09	14.25	19.57	19.57	19.57	34.62	17.37	17.49	36.08	43.25	13.21
Movement LOS	D	D	B	B	B	B	C	B	B	D	D	B
d_A, Approach Delay [s/veh]	37.63			19.57			20.02			41.30		
Approach LOS	D			B			C			D		
d_I, Intersection Delay [s/veh]	30.55											
Intersection LOS	C											
Intersection V/C	1.146											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Grove St/Chiquita Rd

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.052

Intersection Setup

Name	Chiquita Rd		Grove St		Grove St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0
Pocket Length [ft]	50.00	100.00	75.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

volumes

Name	Chiquita Rd		Grove St		Grove St	
Base Volume Input [veh/h]	24	31	25	80	112	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	8	14	0	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	39	39	80	112	36
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	11	11	22	31	10
Total Analysis Volume [veh/h]	34	43	43	89	124	40
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.05	0.03	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.81	9.18	7.62	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.16	0.15	0.09	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	4.11	3.74	2.35	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.90		2.48		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.92					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Grove St/Healdsburg Ave

Control Type:	Signalized	Delay (sec / veh):	11.8
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.259

Intersection Setup

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	80.00	100.00	100.00	135.00	100.00	70.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

volumes

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Base Volume Input [veh/h]	58	272	2	0	340	113	105	2	22	1	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	0	0	0	4	2	0	5	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	272	2	0	340	117	107	2	27	1	1	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	76	1	0	94	33	30	1	8	0	0	0
Total Analysis Volume [veh/h]	73	302	2	0	378	130	119	2	30	1	1	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	18			0			4			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	3	6	0	3	6	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	15	30	0	0	20	0	0	15	0
Amber [s]	3.0	3.7	0.0	3.0	3.7	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	1.0	0.0
Split [s]	21	35	0	6	20	0	0	19	0	0	20	0
Vehicle Extension [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.1	0.0	1.0	2.1	0.0	0.0	1.6	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
L, Total Lost Time per Cycle [s]	3.00	4.10	4.10	3.00	4.10	4.10	3.60	3.60	3.60	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	2.10	2.10	1.00	2.10	2.10	1.60	1.60	1.60	2.20
g_i, Effective Green Time [s]	4	61	61	0	56	56	4	4	4	0
g / C, Green / Cycle	0.05	0.76	0.76	0.00	0.70	0.70	0.05	0.05	0.05	0.00
(v / s)_i Volume / Saturation Flow Rate	0.04	0.08	0.08	0.00	0.14	0.14	0.03	0.03	0.02	0.00
s, saturation flow rate [veh/h]	1774	1863	1858	1774	1863	1701	1774	1777	1428	1817
c, Capacity [veh/h]	96	1406	1403	1	1307	1193	98	98	79	6
d1, Uniform Delay [s]	37.37	2.62	2.62	0.00	4.16	4.17	37.04	37.04	36.54	39.83
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.55	0.16	0.16	0.00	0.35	0.39	2.37	2.37	1.13	10.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

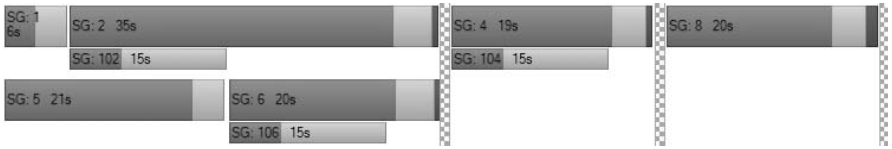
X, volume / capacity	0.76	0.11	0.11	0.00	0.20	0.21	0.62	0.62	0.38	0.32
d, Delay for Lane Group [s/veh]	41.92	2.78	2.78	0.00	4.50	4.56	39.41	39.40	37.67	50.15
Lane Group LOS	D	A	A	A	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.49	0.44	0.44	0.00	1.20	1.13	1.19	1.19	0.57	0.06
50th-Percentile Queue Length [ft]	37.18	11.12	11.11	0.00	29.92	28.29	29.65	29.67	14.34	1.41
95th-Percentile Queue Length [veh]	2.68	0.80	0.80	0.00	2.15	2.04	2.13	2.14	1.03	0.10
95th-Percentile Queue Length [ft]	66.92	20.01	19.99	0.00	53.86	50.93	53.37	53.40	25.81	2.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.92	2.78	2.78	0.00	4.52	4.56	39.41	39.40	37.67	50.15	50.15	50.15
Movement LOS	D	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	10.36			4.53			39.06			50.15		
Approach LOS	B			A			D			D		
d_I, Intersection Delay [s/veh]	11.76											
Intersection LOS	B											
Intersection V/C	0.259											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	Two-way stop	Delay (sec / veh):	345.1
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.020

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	132	2	7	0	111	62	359	198	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	9	0	0	0	12	0	39	13	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	141	2	7	0	123	62	398	211	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9150	0.9150	0.9150	1.0000	0.9150	0.9150	0.9150	0.9150	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	39	1	2	0	34	17	109	58	0
Total Analysis Volume [veh/h]	0	0	0	154	2	8	0	134	68	435	231	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	0	3	0	0
Two-Stage Gap Acceptance		No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	1.49	0.02	0.01	0.00	0.00	0.00	0.32	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	344.33	345.05	9.50	0.00	0.00	0.00	8.85	0.00	0.00
Movement LOS				F	F	A		A	A	A	A	
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	11.59	11.59	0.03	0.00	0.00	0.00	2.75	2.75	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	289.80	289.80	0.75	0.00	0.00	0.00	68.81	68.81	0.00
d_A, Approach Delay [s/veh]	0.00			328.00			0.00			5.78		
Approach LOS	A			F			A			A		
d_I, Intersection Delay [s/veh]	55.85											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Two-way stop	Delay (sec / veh):	33.3
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	55.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	107	0	434	0	0	0	10	230	0	0	455	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	22	0	0	0	0	21	0	0	52	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	0	456	0	0	0	10	251	0	0	507	122
Peak Hour Factor	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	0	127	0	0	0	3	70	0	0	141	34
Total Analysis Volume [veh/h]	119	0	507	0	0	0	11	279	0	0	563	136
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	2			0			0			0		
Two-Stage Gap Acceptance	No											
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.49	0.00	0.67	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	33.03	33.30	18.70	0.00	0.00	0.00	9.06	0.00	0.00	0.00	0.00	0.00
Movement LOS	D	D	C				A	A			A	A
95th-Percentile Queue Length [veh]	2.47	2.47	5.17	0.00	0.00	0.00	1.41	1.41	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	61.65	61.65	129.25	0.00	0.00	0.00	35.15	35.15	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	21.43			0.00			0.34			0.00		
Approach LOS	C			A			A			A		
d_I, Intersection Delay [s/veh]	8.37											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 3: Grove Street/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	31.3
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.013

Intersection Setup

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	265.00	75.00	100.00	75.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

volumes

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	83	42	48	21	64	148	111	497	111	60	434	43
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	9	15	8	11	23	14	19	10	6	25	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	102	51	63	29	75	171	125	516	121	66	459	48
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	14	18	8	21	48	35	143	34	18	128	13
Total Analysis Volume [veh/h]	113	57	70	32	83	190	139	573	134	73	510	53
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	67
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	3	6	0	3	6	0
Maximum Green [s]	0	15	0	0	15	0	10	30	0	10	30	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	29	0	0	29	0	13	34	0	13	34	0
Vehicle Extension [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	8	0	0	8	0	0	8	0
Pedestrian Clearance [s]	0	16	0	0	15	0	0	9	0	0	8	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	C	L	C	R
L, Total Lost Time per Cycle [s]	3.60	3.60	3.60	3.00	4.00	4.00	3.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.60	1.60	1.00	2.00	2.00	1.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	25	7	27	27	4	24	24
g / C, Green / Cycle	0.38	0.38	0.38	0.11	0.41	0.41	0.06	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.44	0.05	0.44	0.09	0.22	0.22	0.05	0.30	0.04
s, saturation flow rate [veh/h]	388	1425	692	1597	1676	1568	1597	1676	1425
c, Capacity [veh/h]	235	536	320	170	687	642	89	602	512
d1, Uniform Delay [s]	21.24	13.71	18.20	29.30	14.92	14.93	31.29	19.78	14.29
k, delay calibration	0.50	0.04	0.50	0.07	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.42	0.04	39.82	6.00	2.93	3.14	6.74	13.81	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

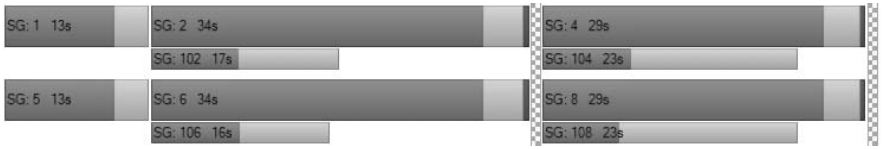
X, volume / capacity	0.72	0.13	0.95	0.82	0.53	0.53	0.82	0.85	0.10
d, Delay for Lane Group [s/veh]	38.65	13.75	58.01	35.29	17.86	18.07	38.03	33.59	14.70
Lane Group LOS	D	B	E	D	B	B	D	C	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	3.76	0.65	6.93	2.38	4.35	4.11	1.29	8.96	0.56
50th-Percentile Queue Length [ft]	93.95	16.16	173.17	59.40	108.85	102.86	32.26	223.96	13.93
95th-Percentile Queue Length [veh]	6.76	1.16	11.24	4.28	7.78	7.41	2.32	13.87	1.00
95th-Percentile Queue Length [ft]	169.12	29.08	281.08	106.92	194.40	185.14	58.07	346.68	25.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.65	38.65	13.75	58.01	58.01	58.01	35.29	17.93	18.07	38.03	33.59	14.70
Movement LOS	D	D	B	E	E	E	D	B	B	D	C	B
d_A, Approach Delay [s/veh]	31.39			58.01			20.81			32.53		
Approach LOS	C			E			C			C		
d_I, Intersection Delay [s/veh]	31.34											
Intersection LOS	C											
Intersection V/C	1.013											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Grove St/Chiquita Rd

Control Type:	Two-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.065

Intersection Setup

Name	Chiquita Rd		Grove St		Grove St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0
Pocket Length [ft]	50.00	100.00	75.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

volumes

Name	Chiquita Rd		Grove St		Grove St	
Base Volume Input [veh/h]	29	24	25	57	126	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	13	4	9	11	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	37	29	66	137	15
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	10	8	18	38	4
Total Analysis Volume [veh/h]	44	41	32	73	152	17
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane						
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.05	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.68	9.27	7.62	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.21	0.15	0.07	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	5.19	3.64	1.74	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.00		2.32		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.05					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Grove St/Healdsburg Ave

Control Type:	Signalized	Delay (sec / veh):	9.4
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.213

Intersection Setup

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	80.00	100.00	100.00	135.00	100.00	70.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

volumes

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Base Volume Input [veh/h]	36	224	1	3	292	115	43	3	13	1	4	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	6	0	0	1	12	11	0	9	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	230	1	3	293	127	54	3	22	1	4	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	64	0	1	81	35	15	1	6	0	1	0
Total Analysis Volume [veh/h]	42	256	1	3	326	141	60	3	24	1	4	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	41			0			7			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	3	6	0	3	6	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	15	30	0	0	20	0	0	15	0
Amber [s]	3.0	3.7	0.0	3.0	3.7	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	1.0	0.0
Split [s]	21	35	0	6	20	0	0	19	0	0	20	0
Vehicle Extension [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.1	0.0	1.0	2.1	0.0	0.0	1.6	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
L, Total Lost Time per Cycle [s]	3.00	4.10	4.10	3.00	4.10	4.10	3.60	3.60	3.60	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	2.10	2.10	1.00	2.10	2.10	1.60	1.60	1.60	2.20
g_i, Effective Green Time [s]	2	61	61	0	59	59	4	4	4	1
g / C, Green / Cycle	0.03	0.76	0.76	0.00	0.73	0.73	0.04	0.04	0.04	0.01
(v / s)_i Volume / Saturation Flow Rate	0.02	0.07	0.07	0.00	0.13	0.13	0.02	0.02	0.02	0.00
s, saturation flow rate [veh/h]	1774	1863	1860	1774	1863	1671	1774	1782	1153	1844
c, Capacity [veh/h]	55	1412	1411	6	1361	1221	80	81	52	14
d1, Uniform Delay [s]	38.53	2.51	2.51	39.87	3.35	3.36	37.17	37.17	37.29	39.58
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.93	0.13	0.13	26.26	0.29	0.33	1.15	1.14	2.33	6.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

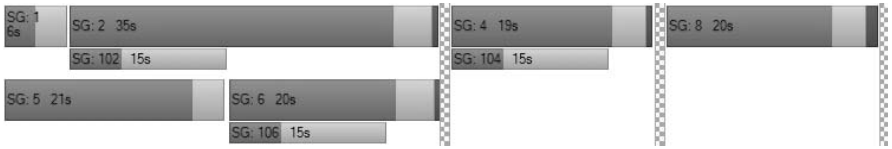
X, volume / capacity	0.76	0.09	0.09	0.54	0.18	0.18	0.39	0.39	0.46	0.37
d, Delay for Lane Group [s/veh]	46.46	2.64	2.64	66.13	3.63	3.69	38.33	38.31	39.62	45.70
Lane Group LOS	D	A	A	E	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes
50th-Percentile Queue Length [veh]	0.91	0.36	0.36	0.10	0.90	0.85	0.61	0.61	0.48	0.12
50th-Percentile Queue Length [ft]	22.87	8.99	8.98	2.45	22.60	21.29	15.17	15.19	11.95	2.95
95th-Percentile Queue Length [veh]	1.65	0.65	0.65	0.18	1.63	1.53	1.09	1.09	0.86	0.21
95th-Percentile Queue Length [ft]	41.17	16.18	16.17	4.42	40.67	38.32	27.30	27.33	21.52	5.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.46	2.64	2.64	66.13	3.65	3.69	38.32	38.31	39.62	45.70	45.70	45.70
Movement LOS	D	A	A	E	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	8.80			4.06			38.68			45.70		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	9.44											
Intersection LOS	A											
Intersection V/C	0.213											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	Two-way stop	Delay (sec / veh):	648.3
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.036

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	104	2	25	0	200	170	436	214	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	19	0	0	0	17	0	27	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	123	2	25	0	217	170	463	226	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9670	0.9670	0.9670	1.0000	0.9670	0.9670	0.9670	0.9670	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	32	1	6	0	56	44	120	58	0
Total Analysis Volume [veh/h]	0	0	0	127	2	26	0	224	176	479	234	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	0			3			0			0		
Two-Stage Gap Acceptance				No								
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	2.04	0.04	0.03	0.00	0.00	0.00	0.41	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	641.73	648.34	9.62	0.00	0.00	0.00	10.28	0.00	0.00
Movement LOS				F	F	A		A	A	B	A	
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	12.30	12.30	0.10	0.00	0.00	0.00	4.45	4.45	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	307.47	307.47	2.50	0.00	0.00	0.00	111.13	111.13	0.00
d_A, Approach Delay [s/veh]	0.00			535.78			0.00			6.91		
Approach LOS	A			F			A			A		
d_I, Intersection Delay [s/veh]	69.38											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Two-way stop	Delay (sec / veh):	45.9
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	71	0	438	0	0	0	12	296	0	0	572	266
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	45	0	0	0	0	36	0	0	39	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	0	483	0	0	0	12	332	0	0	611	278
Peak Hour Factor	0.9450	0.9450	0.9450	1.0000	1.0000	1.0000	0.9450	0.9450	1.0000	1.0000	0.9450	0.9450
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	0	128	0	0	0	3	88	0	0	162	74
Total Analysis Volume [veh/h]	75	0	511	0	0	0	13	351	0	0	647	294
Pedestrian Volume [ped/h]	0			16			0			0		

Intersection Settings

Priority Scheme	Stop			Stop			Free			Free		
Flared Lane												
Storage Area [veh]	2			0			0			0		
Two-Stage Gap Acceptance	No											
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.45	0.00	0.74	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	43.22	45.93	23.37	0.00	0.00	0.00	10.18	0.00	0.00	0.00	0.00	0.00
Movement LOS	E	E	C				B	A			A	A
95th-Percentile Queue Length [veh]	2.08	2.08	6.55	0.00	0.00	0.00	2.97	2.97	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	52.00	52.00	163.85	0.00	0.00	0.00	74.31	74.31	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	25.91			0.00			0.36			0.00		
Approach LOS	D			A			A			A		
d_I, Intersection Delay [s/veh]	8.10											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 3: Grove Street/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	36.7
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.193

Intersection Setup

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	265.00	75.00	100.00	75.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

volumes

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	122	62	116	20	66	125	92	469	105	86	578	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	14	14	8	15	13	23	35	23	21	23	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	137	76	130	28	81	138	115	504	128	107	601	28
Peak Hour Factor	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	20	34	7	21	36	30	131	33	28	156	7
Total Analysis Volume [veh/h]	142	79	135	29	84	143	119	523	133	111	624	29
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	67
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	3	6	0	3	6	0
Maximum Green [s]	0	15	0	0	15	0	10	30	0	10	30	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	29	0	0	29	0	13	34	0	13	34	0
Vehicle Extension [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	8	0	0	8	0	0	8	0
Pedestrian Clearance [s]	0	16	0	0	15	0	0	9	0	0	8	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	C	L	C	R
L, Total Lost Time per Cycle [s]	3.60	3.60	3.60	3.00	4.00	4.00	3.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.60	1.60	1.00	2.00	2.00	1.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	25	6	25	25	6	25	25
g / C, Green / Cycle	0.38	0.38	0.38	0.09	0.38	0.38	0.09	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.53	0.09	0.35	0.07	0.20	0.20	0.07	0.37	0.02
s, saturation flow rate [veh/h]	415	1425	731	1597	1676	1561	1597	1676	1425
c, Capacity [veh/h]	245	537	335	147	636	592	137	625	532
d1, Uniform Delay [s]	23.37	14.37	16.92	29.85	16.19	16.20	30.09	20.97	13.44
k, delay calibration	0.50	0.04	0.38	0.04	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	37.11	0.09	11.86	4.04	3.19	3.45	4.27	35.43	0.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

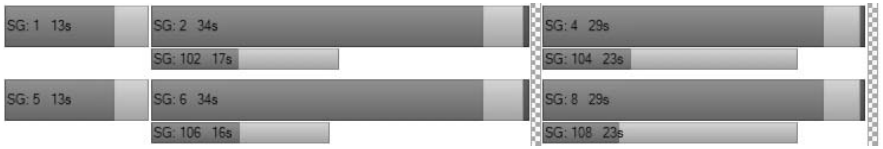
X, volume / capacity	0.90	0.25	0.76	0.81	0.53	0.54	0.81	1.00	0.05
d, Delay for Lane Group [s/veh]	60.49	14.46	28.78	33.89	19.39	19.65	34.36	56.40	13.64
Lane Group LOS	E	B	C	C	B	B	C	E	B
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	6.00	1.31	3.78	1.97	4.26	4.02	1.85	14.91	0.29
50th-Percentile Queue Length [ft]	149.94	32.74	94.45	49.17	106.52	100.52	46.21	372.66	7.24
95th-Percentile Queue Length [veh]	10.01	2.36	6.80	3.54	7.65	7.24	3.33	21.24	0.52
95th-Percentile Queue Length [ft]	250.35	58.93	170.01	88.51	191.15	180.94	83.17	530.96	13.03

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.49	60.49	14.46	28.78	28.78	28.78	33.89	19.48	19.65	34.36	56.40	13.64
Movement LOS	E	E	B	C	C	C	C	B	B	C	E	B
d_A, Approach Delay [s/veh]	43.03			28.78			21.72			51.58		
Approach LOS	D			C			C			D		
d_I, Intersection Delay [s/veh]	36.69											
Intersection LOS	D											
Intersection V/C	1.193											

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Grove St/Chiquita Rd

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.054

Intersection Setup

Name	Chiquita Rd		Grove St		Grove St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0
Pocket Length [ft]	50.00	100.00	75.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

volumes

Name	Chiquita Rd		Grove St		Grove St	
Base Volume Input [veh/h]	24	31	25	80	112	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	8	14	11	19	12
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	39	39	91	131	36
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	11	11	25	36	10
Total Analysis Volume [veh/h]	34	43	43	101	146	40
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane						
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.05	0.03	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.09	9.31	7.68	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.17	0.15	0.10	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	4.31	3.85	2.40	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.10		2.29		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.72					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Grove St/Healdsburg Ave

Control Type:	Signalized	Delay (sec / veh):	12.1
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.273

Intersection Setup

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	80.00	100.00	100.00	135.00	100.00	70.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

volumes

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Base Volume Input [veh/h]	58	272	2	0	340	113	105	2	22	1	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	6	0	0	3	21	11	0	7	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	278	2	0	343	134	116	2	29	1	1	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	77	1	0	95	37	32	1	8	0	0	0
Total Analysis Volume [veh/h]	76	309	2	0	381	149	129	2	32	1	1	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	18			0			4			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	3	6	0	3	6	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	15	30	0	0	20	0	0	15	0
Amber [s]	3.0	3.7	0.0	3.0	3.7	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	1.0	0.0
Split [s]	21	35	0	6	20	0	0	19	0	0	20	0
Vehicle Extension [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.1	0.0	1.0	2.1	0.0	0.0	1.6	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
L, Total Lost Time per Cycle [s]	3.00	4.10	4.10	3.00	4.10	4.10	3.60	3.60	3.60	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	2.10	2.10	1.00	2.10	2.10	1.60	1.60	1.60	2.20
g_i, Effective Green Time [s]	4	60	60	0	56	56	4	4	4	0
g / C, Green / Cycle	0.06	0.75	0.75	0.00	0.70	0.70	0.06	0.06	0.06	0.00
(v / s)_i Volume / Saturation Flow Rate	0.04	0.08	0.08	0.00	0.15	0.15	0.04	0.04	0.02	0.00
s, saturation flow rate [veh/h]	1774	1863	1859	1774	1863	1685	1774	1777	1431	1817
c, Capacity [veh/h]	100	1404	1401	1	1300	1176	100	100	80	6
d1, Uniform Delay [s]	37.27	2.65	2.65	0.00	4.29	4.30	37.05	37.05	36.50	39.83
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.39	0.16	0.16	0.00	0.37	0.42	2.71	2.71	1.18	10.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

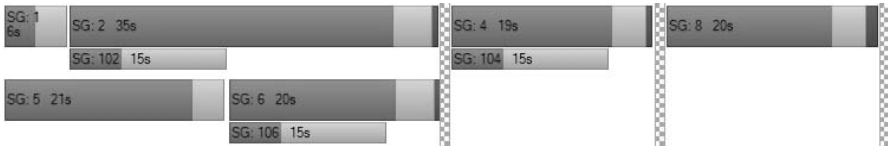
X, volume / capacity	0.76	0.11	0.11	0.00	0.21	0.22	0.66	0.66	0.40	0.32
d, Delay for Lane Group [s/veh]	41.66	2.81	2.81	0.00	4.66	4.73	39.76	39.76	37.68	50.15
Lane Group LOS	D	A	A	A	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.54	0.46	0.46	0.00	1.29	1.21	1.29	1.29	0.61	0.06
50th-Percentile Queue Length [ft]	38.56	11.51	11.50	0.00	32.25	30.25	32.28	32.30	15.29	1.41
95th-Percentile Queue Length [veh]	2.78	0.83	0.83	0.00	2.32	2.18	2.32	2.33	1.10	0.10
95th-Percentile Queue Length [ft]	69.41	20.73	20.70	0.00	58.04	54.45	58.10	58.14	27.53	2.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.66	2.81	2.81	0.00	4.68	4.73	39.76	39.76	37.68	50.15	50.15	50.15
Movement LOS	D	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	10.44			4.69			39.35			50.15		
Approach LOS	B			A			D			D		
d_I, Intersection Delay [s/veh]	12.05											
Intersection LOS	B											
Intersection V/C	0.273											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	35.4
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.540

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	144	4	10	0	123	134	468	198	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	10	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	144	4	10	0	123	134	478	199	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	36	1	3	0	31	34	120	50	0
Total Analysis Volume [veh/h]	0	0	0	144	4	10	0	123	134	478	199	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	5	0	5	5	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	25	0	0	25	0	70	95	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		13	13	57	57	38	99
g / C, Green / Cycle		0.11	0.11	0.47	0.47	0.32	0.82
(v / s)_i Volume / Saturation Flow Rate		0.09	0.01	0.07	0.09	0.30	0.12
s, saturation flow rate [veh/h]		1599	1425	1676	1425	1597	1676
c, Capacity [veh/h]		174	155	794	675	507	1383
d1, Uniform Delay [s]		52.52	48.00	17.94	18.35	39.85	2.09
k, delay calibration		0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		11.07	0.17	0.42	0.66	9.23	0.22
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

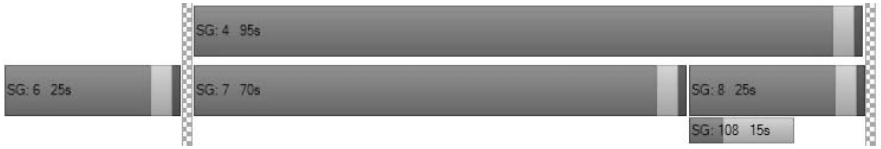
X, volume / capacity		0.85	0.06	0.15	0.20	0.94	0.14
d, Delay for Lane Group [s/veh]		63.59	48.17	18.35	19.00	49.08	2.31
Lane Group LOS		E	D	B	B	D	A
Critical Lane Group		Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		4.91	0.28	2.04	2.29	14.84	0.75
50th-Percentile Queue Length [ft]		122.72	6.94	50.97	57.34	370.97	18.80
95th-Percentile Queue Length [veh]		8.54	0.50	3.67	4.13	21.16	1.35
95th-Percentile Queue Length [ft]		213.56	12.49	91.75	103.21	528.91	33.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	63.59	63.59	48.17	0.00	18.35	19.00	49.08	2.31	0.00
Movement LOS				E	E	D		B	B	D	A	
d_A, Approach Delay [s/veh]	0.00			62.61			18.69			35.33		
Approach LOS	A			E			B			D		
d_I, Intersection Delay [s/veh]	35.36											
Intersection LOS	D											
Intersection V/C	0.540											

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Signalized	Delay (sec / veh):	36.3
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.795

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	55.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	115	0	686	0	0	0	10	257	0	0	553	143
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	3	0	0	0	0	0	0	0	11	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	115	0	689	0	0	0	10	257	0	0	564	143
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	0	172	0	0	0	3	64	0	0	141	36
Total Analysis Volume [veh/h]	115	0	689	0	0	0	10	257	0	0	564	143
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	80	0	0	0	0	9	40	0	0	31	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R		L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	60	60		1	52	46	46
g / C, Green / Cycle	0.50	0.50		0.01	0.43	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.07	0.48		0.01	0.15	0.21	0.23
s, saturation flow rate [veh/h]	1597	1425		1597	1676	1676	1565
c, Capacity [veh/h]	802	715		19	723	647	604
d1, Uniform Delay [s]	16.03	28.80		58.94	22.92	28.66	29.21
k, delay calibration	0.11	0.30		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.08	18.56		20.63	1.37	3.29	4.11
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.96		0.53	0.36	0.55	0.59
d, Delay for Lane Group [s/veh]	16.11	47.36		79.57	24.28	31.95	33.33
Lane Group LOS	B	D		E	C	C	C
Critical Lane Group	No	Yes		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.71	21.95		0.41	5.16	8.48	8.73
50th-Percentile Queue Length [ft]	42.87	548.82		10.29	128.99	211.91	218.20
95th-Percentile Queue Length [veh]	3.09	29.64		0.74	8.88	13.25	13.57
95th-Percentile Queue Length [ft]	77.17	740.92		18.52	222.12	331.28	339.32

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.11	16.11	47.36	0.00	0.00	0.00	79.57	24.28	0.00	0.00	32.47	33.33
Movement LOS	B	B	D				E	C			C	C
d_A, Approach Delay [s/veh]	42.89			0.00			26.35			32.64		
Approach LOS	D			A			C			C		
d_I, Intersection Delay [s/veh]	36.33											
Intersection LOS	D											
Intersection V/C	0.795											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Grove Street/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	28.1
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.708

Intersection Setup

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	265.00	75.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

volumes

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	84	58	48	27	75	199	211	654	133	63	523	71
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	0	2	11	3	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	59	48	27	77	210	214	654	133	63	523	71
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	15	12	7	19	53	54	164	33	16	131	18
Total Analysis Volume [veh/h]	84	59	48	27	77	210	214	654	133	63	523	71
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	67
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	3	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	6	0	0	6	0	3	6	0	3	6	0
Maximum Green [s]	30	15	0	0	15	0	10	30	0	10	30	0
Amber [s]	3.0	3.2	0.0	0.0	3.2	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	1.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	9	35	0	0	26	0	12	22	0	10	20	0
Vehicle Extension [s]	3.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	8	0	0	8	0	0	8	0
Pedestrian Clearance [s]	0	16	0	0	15	0	0	9	0	0	8	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	1.6	0.0	0.0	1.6	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Minimum Recall	No	No			No		No	No		No	No	
Maximum Recall	No	No			No		No	No		No	No	
Pedestrian Recall	No	No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C
L, Total Lost Time per Cycle [s]	4.00	3.60	3.60	3.00	4.00	4.00	3.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	1.60	1.60	1.00	2.00	2.00	1.00	2.00	2.00
g_i, Effective Green Time [s]	4	24	16	9	29	29	3	23	23
g / C, Green / Cycle	0.06	0.36	0.24	0.13	0.43	0.43	0.05	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.05	0.07	0.21	0.13	0.24	0.24	0.04	0.18	0.18
s, saturation flow rate [veh/h]	1597	1553	1471	1597	1676	1579	1597	1676	1607
c, Capacity [veh/h]	104	560	405	214	727	685	76	582	558
d1, Uniform Delay [s]	30.92	14.72	24.82	29.01	14.19	14.19	31.63	17.43	17.45
k, delay calibration	0.11	0.04	0.12	0.41	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.91	0.06	3.42	54.96	3.07	3.26	8.00	3.30	3.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.19	0.78	1.00	0.56	0.56	0.82	0.52	0.52
d, Delay for Lane Group [s/veh]	44.83	14.78	28.24	83.97	17.26	17.45	39.63	20.73	20.92
Lane Group LOS	D	B	C	F	B	B	D	C	C
Critical Lane Group	Yes	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	1.69	1.04	4.90	6.54	4.72	4.48	1.14	3.96	3.84
50th-Percentile Queue Length [ft]	42.24	26.12	122.49	163.57	117.98	112.04	28.58	99.01	96.03
95th-Percentile Queue Length [veh]	3.04	1.88	8.53	10.74	8.28	7.95	2.06	7.13	6.91
95th-Percentile Queue Length [ft]	76.03	47.02	213.25	268.45	207.05	198.83	51.45	178.22	172.85

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.83	14.78	14.78	28.24	28.24	28.24	83.97	17.33	17.45	39.63	20.81	20.92
Movement LOS	D	B	B	C	C	C	F	B	B	D	C	C
d_A, Approach Delay [s/veh]	28.00			28.24			31.59			22.63		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	28.07											
Intersection LOS	C											
Intersection V/C	0.708											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Grove St/Chiquita Rd

Control Type:	Two-way stop	Delay (sec / veh):	10.6
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.061

Intersection Setup

Name	Chiquita Rd		Grove St		Grove St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0
Pocket Length [ft]	50.00	100.00	75.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

volumes

Name	Chiquita Rd		Grove St		Grove St	
Base Volume Input [veh/h]	31	25	26	66	154	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	13	4	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	38	30	66	154	18
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	10	8	17	39	5
Total Analysis Volume [veh/h]	42	38	30	66	154	18
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane						
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.04	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.58	9.27	7.62	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.20	0.13	0.07	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	4.88	3.37	1.64	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.96		2.38		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.95					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Grove St/Healdsburg Ave

Control Type:	Signalized	Delay (sec / veh):	7.9
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.224

Intersection Setup

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	80.00	100.00	100.00	135.00	100.00	70.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

volumes

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Base Volume Input [veh/h]	36	430	1	3	376	145	54	3	13	1	4	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	0	0	1	4	0	7	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	430	1	3	376	146	58	3	20	1	4	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	108	0	1	94	37	15	1	5	0	1	0
Total Analysis Volume [veh/h]	38	430	1	3	376	146	58	3	20	1	4	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	41			0			7			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	3	6	0	3	6	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	15	30	0	0	20	0	0	15	0
Amber [s]	3.0	3.7	0.0	3.0	3.7	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	1.0	0.0
Split [s]	21	35	0	6	20	0	0	19	0	0	20	0
Vehicle Extension [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.1	0.0	1.0	2.1	0.0	0.0	1.6	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
L, Total Lost Time per Cycle [s]	3.00	4.10	4.10	3.00	4.10	4.10	3.60	3.60	3.60	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	2.10	2.10	1.00	2.10	2.10	1.60	1.60	1.60	2.20
g_i, Effective Green Time [s]	2	61	61	0	59	59	3	3	3	1
g / C, Green / Cycle	0.03	0.76	0.76	0.00	0.74	0.74	0.04	0.04	0.04	0.01
(v / s)_i Volume / Saturation Flow Rate	0.02	0.12	0.12	0.00	0.15	0.15	0.02	0.02	0.02	0.00
s, saturation flow rate [veh/h]	1774	1863	1861	1774	1863	1684	1774	1782	1132	1844
c, Capacity [veh/h]	50	1416	1415	6	1370	1239	77	77	49	14
d1, Uniform Delay [s]	38.68	2.60	2.60	39.87	3.28	3.29	37.32	37.32	37.34	39.58
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.84	0.23	0.23	26.26	0.32	0.37	1.24	1.23	2.03	6.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

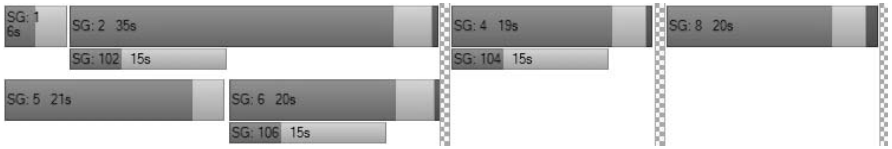
X, volume / capacity	0.77	0.15	0.15	0.54	0.20	0.20	0.40	0.40	0.41	0.37
d, Delay for Lane Group [s/veh]	47.52	2.83	2.83	66.13	3.60	3.66	38.56	38.54	39.37	45.70
Lane Group LOS	D	A	A	E	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes
50th-Percentile Queue Length [veh]	0.84	0.62	0.62	0.10	0.99	0.93	0.59	0.59	0.40	0.12
50th-Percentile Queue Length [ft]	21.02	15.61	15.61	2.45	24.79	23.33	14.75	14.77	9.94	2.95
95th-Percentile Queue Length [veh]	1.51	1.12	1.12	0.18	1.78	1.68	1.06	1.06	0.72	0.21
95th-Percentile Queue Length [ft]	37.84	28.10	28.09	4.42	44.62	42.00	26.55	26.58	17.89	5.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.52	2.83	2.83	66.13	3.62	3.66	38.55	38.54	39.37	45.70	45.70	45.70
Movement LOS	D	A	A	E	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	6.45			3.99			38.75			45.70		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	7.86											
Intersection LOS	A											
Intersection V/C	0.224											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	33.0
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.794

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	161	3	26	0	204	190	717	217	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	1	0	5	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	161	3	26	0	205	190	722	218	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	40	1	7	0	51	48	181	55	0
Total Analysis Volume [veh/h]	0	0	0	161	3	26	0	205	190	722	218	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	5	0	5	5	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	39	0	0	19	0	32	51	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		11	11	24	24	43	71
g / C, Green / Cycle		0.13	0.13	0.27	0.27	0.47	0.79
(v / s)_i Volume / Saturation Flow Rate		0.10	0.02	0.12	0.13	0.45	0.13
s, saturation flow rate [veh/h]		1598	1425	1676	1425	1597	1676
c, Capacity [veh/h]		202	180	448	381	756	1316
d1, Uniform Delay [s]		38.31	35.01	27.56	27.91	22.79	2.39
k, delay calibration		0.11	0.11	0.50	0.50	0.31	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		7.69	0.37	3.35	4.62	17.11	0.27
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.81	0.14	0.46	0.50	0.96	0.17
d, Delay for Lane Group [s/veh]		45.99	35.38	30.90	32.53	39.90	2.66
Lane Group LOS		D	D	C	C	D	A
Critical Lane Group		Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		3.90	0.52	4.03	3.88	17.11	0.72
50th-Percentile Queue Length [ft]		97.45	13.02	100.73	96.99	427.66	18.06
95th-Percentile Queue Length [veh]		7.02	0.94	7.25	6.98	23.89	1.30
95th-Percentile Queue Length [ft]		175.41	23.43	181.31	174.57	597.23	32.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	45.99	45.99	35.38	0.00	30.90	32.53	39.90	2.66	0.00
Movement LOS				D	D	D		C	C	D	A	
d_A, Approach Delay [s/veh]	0.00			44.54			31.69			31.26		
Approach LOS	A			D			C			C		
d_I, Intersection Delay [s/veh]	33.03											
Intersection LOS	C											
Intersection V/C	0.794											

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Signalized	Delay (sec / veh):	53.1
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.983

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	87	0	686	0	0	0	12	363	0	0	843	325
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	10	0	0	0	0	1	0	0	6	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	0	696	0	0	0	12	364	0	0	849	325
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	0	174	0	0	0	3	91	0	0	212	81
Total Analysis Volume [veh/h]	87	0	696	0	0	0	12	364	0	0	849	325
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			16			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	64	0	0	0	0	9	56	0	0	47	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	0	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R		L	C	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	60	60		2	52	47	47
g / C, Green / Cycle	0.50	0.50		0.01	0.44	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.05	0.49		0.01	0.22	0.35	0.39
s, saturation flow rate [veh/h]	1597	1425		1597	1676	1676	1508
c, Capacity [veh/h]	793	708		22	732	653	587
d1, Uniform Delay [s]	16.07	29.71		58.51	17.32	34.41	36.61
k, delay calibration	0.11	0.46		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.06	28.55		19.12	2.41	17.67	36.93
d3, Initial Queue Delay [s]	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00		1.33	1.33	1.00	1.00
PF, progression factor	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

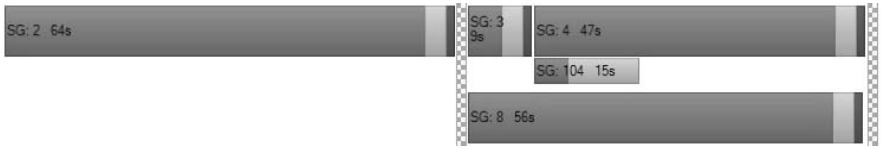
X, volume / capacity	0.11	0.98		0.54	0.50	0.90	1.00
d, Delay for Lane Group [s/veh]	16.13	58.26		77.63	19.73	52.09	73.54
Lane Group LOS	B	E		E	B	D	E
Critical Lane Group	No	Yes		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.29	24.48		0.48	5.67	19.00	22.83
50th-Percentile Queue Length [ft]	32.23	611.98		11.96	141.78	475.08	570.81
95th-Percentile Queue Length [veh]	2.32	32.59		0.86	9.58	26.15	30.67
95th-Percentile Queue Length [ft]	58.02	814.83		21.52	239.41	653.81	766.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.13	16.13	58.26	0.00	0.00	0.00	77.63	19.73	0.00	0.00	58.71	73.54
Movement LOS	B	B	E				E	B			E	E
d_A, Approach Delay [s/veh]	53.58			0.00			21.58			62.81		
Approach LOS	D			A			C			E		
d_I, Intersection Delay [s/veh]	53.07											
Intersection LOS	D											
Intersection V/C	0.983											

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Grove Street/Dry Creek Road

Control Type:	Signalized	Delay (sec / veh):	46.0
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.917

Intersection Setup

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	265.00	75.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

volumes

Name	Grove Street			Grove Street			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	135	107	128	42	119	267	203	660	125	96	765	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	0	2	6	11	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	135	110	128	42	121	273	214	660	125	96	765	49
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	28	32	11	30	68	54	165	31	24	191	12
Total Analysis Volume [veh/h]	135	110	128	42	121	273	214	660	125	96	765	49
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	3	8	1	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	6	3	0	6	3	3	6	0	3	6	0
Maximum Green [s]	30	15	10	0	15	10	10	30	0	10	30	0
Amber [s]	3.0	3.2	3.0	0.0	3.2	3.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	1.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	12	41	12	0	29	14	14	27	0	12	25	0
Vehicle Extension [s]	3.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	8	0	0	8	0	0	8	0
Pedestrian Clearance [s]	0	16	0	0	15	0	0	9	0	0	8	0
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	1.6	1.0	0.0	1.6	1.0	1.0	2.0	0.0	1.0	2.0	0.0
Minimum Recall	No	No			No		No	No		No	No	
Maximum Recall	No	No			No		No	No		No	No	
Pedestrian Recall	No	No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C
L, Total Lost Time per Cycle [s]	4.00	3.60	3.60	3.00	4.00	4.00	3.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	1.60	1.60	1.00	2.00	2.00	1.00	2.00	2.00
g_i, Effective Green Time [s]	8	37	25	11	26	26	6	21	21
g / C, Green / Cycle	0.10	0.47	0.32	0.14	0.33	0.33	0.07	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.08	0.16	0.32	0.13	0.24	0.24	0.06	0.25	0.25
s, saturation flow rate [veh/h]	1597	1531	1383	1597	1676	1585	1597	1676	1641
c, Capacity [veh/h]	160	712	485	220	550	520	119	444	434
d1, Uniform Delay [s]	35.39	13.54	27.38	34.36	23.80	23.80	36.47	28.66	28.66
k, delay calibration	0.25	0.04	0.44	0.40	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	22.87	0.10	20.00	48.40	8.44	8.90	4.88	27.84	28.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

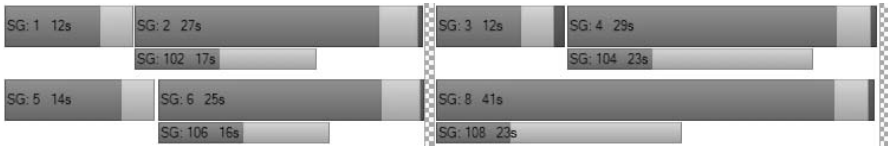
X, volume / capacity	0.85	0.33	0.90	0.97	0.73	0.73	0.81	0.93	0.93
d, Delay for Lane Group [s/veh]	58.27	13.64	47.37	82.76	32.24	32.69	41.35	56.50	56.92
Lane Group LOS	E	B	D	F	C	C	D	E	E
Critical Lane Group	Yes	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	3.54	2.55	10.56	6.98	7.71	7.35	1.97	10.78	10.60
50th-Percentile Queue Length [ft]	88.46	63.72	264.00	174.38	192.66	183.79	49.18	269.48	265.11
95th-Percentile Queue Length [veh]	6.37	4.59	15.89	11.31	12.26	11.80	3.54	16.16	15.94
95th-Percentile Queue Length [ft]	159.23	114.70	397.24	282.67	306.48	294.95	88.53	404.09	398.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.27	13.64	13.64	47.37	47.37	47.37	82.76	32.41	32.69	41.35	56.70	56.92
Movement LOS	E	B	B	D	D	D	F	C	C	D	E	E
d_A, Approach Delay [s/veh]	29.79			47.37			43.23			55.09		
Approach LOS	C			D			D			E		
d_I, Intersection Delay [s/veh]	46.02											
Intersection LOS	D											
Intersection V/C	0.917											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Grove St/Chiquita Rd

Control Type:	Two-way stop	Delay (sec / veh):	11.3
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.053

Intersection Setup

Name	Chiquita Rd		Grove St		Grove St	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0
Pocket Length [ft]	50.00	100.00	75.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

volumes

Name	Chiquita Rd		Grove St		Grove St	
Base Volume Input [veh/h]	25	31	25	127	153	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	8	14	0	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	39	39	127	153	36
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	10	10	32	38	9
Total Analysis Volume [veh/h]	32	39	39	127	153	36
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.04	0.03	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.25	9.32	7.67	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.17	0.14	0.09	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	4.16	3.50	2.17	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.19		1.80		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.40					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Grove St/Healdsburg Ave

Control Type:	Signalized	Delay (sec / veh):	10.6
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.345

Intersection Setup

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	0	0	0
Pocket Length [ft]	150.00	100.00	100.00	80.00	100.00	100.00	135.00	100.00	70.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

volumes

Name	Healdsburg Ave			Healdsburg Ave			Grove St			Private Driveway		
Base Volume Input [veh/h]	63	490	2	0	597	148	150	2	25	1	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	0	0	0	4	2	0	5	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	490	2	0	597	152	152	2	30	1	1	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	123	1	0	149	38	38	1	8	0	0	0
Total Analysis Volume [veh/h]	71	490	2	0	597	152	152	2	30	1	1	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	18			0			4			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	3	6	0	3	6	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	15	30	0	0	20	0	0	15	0
Amber [s]	3.0	3.7	0.0	3.0	3.7	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	1.0	0.0
Split [s]	21	35	0	6	20	0	0	19	0	0	20	0
Vehicle Extension [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.1	0.0	1.0	2.1	0.0	0.0	1.6	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C
L, Total Lost Time per Cycle [s]	3.00	4.10	4.10	3.00	4.10	4.10	3.60	3.60	3.60	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	2.10	2.10	1.00	2.10	2.10	1.60	1.60	1.60	2.20
g_i, Effective Green Time [s]	4	60	60	0	56	56	5	5	5	0
g / C, Green / Cycle	0.05	0.75	0.75	0.00	0.70	0.70	0.06	0.06	0.06	0.00
(v / s)_i Volume / Saturation Flow Rate	0.04	0.13	0.13	0.00	0.21	0.21	0.04	0.04	0.02	0.00
s, saturation flow rate [veh/h]	1774	1863	1860	1774	1863	1732	1774	1776	1447	1817
c, Capacity [veh/h]	94	1392	1390	1	1295	1204	111	111	91	6
d1, Uniform Delay [s]	37.45	2.95	2.95	0.00	4.70	4.70	36.80	36.80	35.95	39.83
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.66	0.28	0.28	0.00	0.59	0.64	2.87	2.86	0.79	10.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

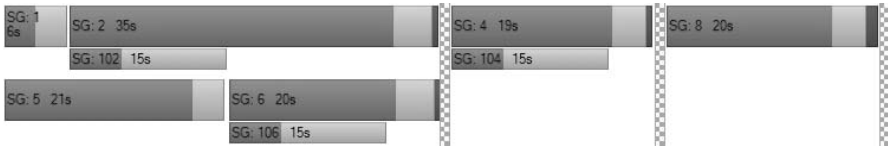
X, volume / capacity	0.76	0.18	0.18	0.00	0.30	0.30	0.69	0.69	0.33	0.32
d, Delay for Lane Group [s/veh]	42.10	3.23	3.23	0.00	5.29	5.34	39.67	39.66	36.73	50.15
Lane Group LOS	D	A	A	A	A	A	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.45	0.81	0.81	0.00	1.99	1.88	1.52	1.52	0.56	0.06
50th-Percentile Queue Length [ft]	36.25	20.32	20.30	0.00	49.75	46.93	37.91	37.93	14.09	1.41
95th-Percentile Queue Length [veh]	2.61	1.46	1.46	0.00	3.58	3.38	2.73	2.73	1.01	0.10
95th-Percentile Queue Length [ft]	65.25	36.57	36.54	0.00	89.55	84.47	68.24	68.28	25.35	2.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.10	3.23	3.23	0.00	5.31	5.34	39.66	39.66	36.73	50.15	50.15	50.15
Movement LOS	D	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	8.13			5.31			39.18			50.15		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.59											
Intersection LOS	B											
Intersection V/C	0.345											

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	All-way stop	Delay (sec / veh):	12.3
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes		

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	132	2	7	0	111	62	359	198	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	9	0	0	0	12	0	29	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	141	2	7	0	123	62	388	210	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9150	0.9150	0.9150	1.0000	0.9150	0.9150	0.9150	0.9150	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	39	1	2	0	34	17	106	57	0
Total Analysis Volume [veh/h]	0	0	0	154	2	8	0	134	68	424	230	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

d_A, Approach Delay [s/veh]	0.00	12.25	8.85	13.37
Approach LOS	A	B	A	B
d_I, Intersection Delay [s/veh]	12.29			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Two-way stop	Delay (sec / veh):	32.3
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	55.00	100.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	107	0	434	0	0	0	10	230	0	0	455	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	19	0	0	0	0	21	0	0	41	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	0	453	0	0	0	10	251	0	0	496	122
Peak Hour Factor	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	0	126	0	0	0	3	70	0	0	138	34
Total Analysis Volume [veh/h]	119	0	503	0	0	0	11	279	0	0	551	136
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	2	0	0	0
Two-Stage Gap Acceptance	No			
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.48	0.00	0.66	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	31.99	32.29	18.51	0.00	0.00	0.00	9.02	0.00	0.00	0.00	0.00	0.00
Movement LOS	D	D	C				A	A			A	A
95th-Percentile Queue Length [veh]	2.39	2.39	5.07	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	59.79	59.79	126.84	0.00	0.00	0.00	0.92	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	21.09			0.00			0.34			0.00		
Approach LOS	C			A			A			A		
d_I, Intersection Delay [s/veh]	8.27											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 129: Foss Creek Project Access

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name						
Approach	Southbound		Westbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Crosswalk	Yes		Yes		Yes	

volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	All-way stop	Delay (sec / veh):	14.1
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes		

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	104	2	25	0	200	170	436	214	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	19	0	0	0	16	0	22	11	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	123	2	25	0	216	170	458	225	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9670	0.9670	0.9670	1.0000	0.9670	0.9670	0.9670	0.9670	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	32	1	6	0	56	44	118	58	0
Total Analysis Volume [veh/h]	0	0	0	127	2	26	0	223	176	474	233	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

d_A, Approach Delay [s/veh]	0.00	12.02	11.50	16.07
Approach LOS	A	B	B	C
d_I, Intersection Delay [s/veh]	14.12			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Two-way stop	Delay (sec / veh):	44.9
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	71	0	438	0	0	0	12	296	0	0	572	266
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	35	0	0	0	0	35	0	0	33	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	0	473	0	0	0	12	331	0	0	605	278
Peak Hour Factor	0.9450	0.9450	0.9450	1.0000	1.0000	1.0000	0.9450	0.9450	1.0000	1.0000	0.9450	0.9450
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	0	125	0	0	0	3	88	0	0	160	74
Total Analysis Volume [veh/h]	75	0	501	0	0	0	13	350	0	0	640	294
Pedestrian Volume [ped/h]	0			16			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	2	0	0	0
Two-Stage Gap Acceptance	No			
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.44	0.00	0.72	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	42.17	44.85	22.50	0.00	0.00	0.00	10.15	0.00	0.00	0.00	0.00	0.00
Movement LOS	E	E	C				B	A			A	A
95th-Percentile Queue Length [veh]	2.04	2.04	6.21	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	50.88	50.88	155.24	0.00	0.00	0.00	1.39	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	25.06			0.00			0.36			0.00		
Approach LOS	D			A			A			A		
d_I, Intersection Delay [s/veh]	7.78											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 129: Foss Creek Project Access

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name						
Approach	Westbound		Southwestbound		Southeastbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Right	Left	Thru
Crosswalk	Yes		Yes		Yes	

volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	All-way stop	Delay (sec / veh):	12.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes		

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	132	2	7	0	111	62	359	198	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	9	0	0	0	12	0	39	13	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	141	2	7	0	123	62	398	211	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9150	0.9150	0.9150	1.0000	0.9150	0.9150	0.9150	0.9150	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	39	1	2	0	34	17	109	58	0
Total Analysis Volume [veh/h]	0	0	0	154	2	8	0	134	68	435	231	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

d_A, Approach Delay [s/veh]	0.00	12.30	8.86	13.72
Approach LOS	A	B	A	B
d_I, Intersection Delay [s/veh]	12.55			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Two-way stop	Delay (sec / veh):	33.2
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	55.00	100.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	107	0	434	0	0	0	10	230	0	0	455	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	22	0	0	0	0	21	0	0	52	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	0	456	0	0	0	10	251	0	0	507	122
Peak Hour Factor	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000	0.9000	0.9000	1.0000	1.0000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	0	127	0	0	0	3	70	0	0	141	34
Total Analysis Volume [veh/h]	119	0	507	0	0	0	11	279	0	0	563	136
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	2	0	0	0
Two-Stage Gap Acceptance	No			
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.49	0.00	0.67	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	32.93	33.20	18.70	0.00	0.00	0.00	9.06	0.00	0.00	0.00	0.00	0.00
Movement LOS	D	D	C				A	A			A	A
95th-Percentile Queue Length [veh]	2.46	2.46	5.17	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	61.48	61.48	129.25	0.00	0.00	0.00	0.93	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	21.41			0.00			0.34			0.00		
Approach LOS	C			A			A			A		
d_I, Intersection Delay [s/veh]	8.36											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 129: Foss Creek Project Access

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name						
Approach	Southbound		Westbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Crosswalk	Yes		Yes		Yes	

volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	24	0	0	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	0	0	7	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	0	0	2	0	0
Total Analysis Volume [veh/h]	24	0	0	7	0	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Level Of Service Report
Intersection 1: US 101 SB Ramps/Dry Creek Road

Control Type:	All-way stop	Delay (sec / veh):	14.3
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes		

Intersection Setup

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

volumes

Name	US 101 SB On-Ramps			US 101 SB Off-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	0	0	0	104	2	25	0	200	170	436	214	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	19	0	0	0	17	0	27	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	123	2	25	0	217	170	463	226	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9670	0.9670	0.9670	1.0000	0.9670	0.9670	0.9670	0.9670	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	32	1	6	0	56	44	120	58	0
Total Analysis Volume [veh/h]	0	0	0	127	2	26	0	224	176	479	234	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Movement, Approach, & Intersection Results

d_A, Approach Delay [s/veh]	0.00	12.05	11.53	16.33
Approach LOS	A	B	B	C
d_I, Intersection Delay [s/veh]	14.29			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 2: US 101 NB Ramps/Dry Creek Rd

Control Type:	Two-way stop	Delay (sec / veh):	45.7
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0	1	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

volumes

Name	US 101 NB Off-Ramps			US 101 NB On-Ramps			Dry Creek Road			Dry Creek Road		
Base Volume Input [veh/h]	71	0	438	0	0	0	12	296	0	0	572	266
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	45	0	0	0	0	36	0	0	39	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	0	483	0	0	0	12	332	0	0	611	278
Peak Hour Factor	0.9450	0.9450	0.9450	1.0000	1.0000	1.0000	0.9450	0.9450	1.0000	1.0000	0.9450	0.9450
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	0	128	0	0	0	3	88	0	0	162	74
Total Analysis Volume [veh/h]	75	0	511	0	0	0	13	351	0	0	647	294
Pedestrian Volume [ped/h]	0			16			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane				
Storage Area [veh]	2	0	0	0
Two-Stage Gap Acceptance	No			
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.45	0.00	0.74	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	42.98	45.66	23.37	0.00	0.00	0.00	10.18	0.00	0.00	0.00	0.00	0.00
Movement LOS	E	E	C				B	A			A	A
95th-Percentile Queue Length [veh]	2.07	2.07	6.55	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	51.75	51.75	163.85	0.00	0.00	0.00	1.40	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	25.88			0.00			0.36			0.00		
Approach LOS	D			A			A			A		
d_I, Intersection Delay [s/veh]	8.09											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 129: Foss Creek Project Access

Control Type:	Unknown	Delay (sec / veh):	?
Analysis Method:	?	Level Of Service:	?
Analysis Period:	15 minutes	Volume to Capacity (v/c):	?

Intersection Setup

Name						
Approach	Westbound		Southwestbound		Southeastbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Right	Left	Thru
Crosswalk	Yes		Yes		Yes	

volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	26	15	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	26	15	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	4	0	0	0
Total Analysis Volume [veh/h]	0	26	15	0	0	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Appendix D

Proportional Share Calculations

Equitable Share Calculation
Scenario #3- AWSC and Left-turn Lanes

	AM	PM
The Oaks at Foss Creek (T)	11	7
255 Dry Creek Rd (T)	8	5
110 Dry Creek Rd (T)	32	33

Total Volume Entering the Intersection of

	Dry Creek Road/US 101 South Ramps	
	AM	PM
Existing	871	1151
Baseline	922	1196

Description of Project Improvement:

All-way stop controls would be installed at the SB ramps only; the westbound approach would be striped with a 125-foot left-turn lane and a through lane; the eastbound approach to the NB ramps would be restriped to include a 50-foot left-turn lane and through lane.

Calculation of Project Share

P = T / (TB - TE)

where:

P = Equitable Share
T = Project trips during the affected peak hour
TB = Build-out volumes
TE = Existing volumes

	AM	PM
TB	922	1196
TE	871	1151

	The Oaks at Foss Creek		255 Dry Creek Rd		110 Dry Creek Rd	
	AM	PM	AM	PM	AM	PM
Project Trips (T)	11	7	8	5	32	33
Equitable Share (P)	21.6%	15.6%	15.7%	11.1%	62.7%	73.3%
Average	18.6%		13.4%		68.0%	

Equitable Share Calculations
The Oaks at Foss Creek

	AM	PM
Project Trips (T)	17	22

Total Volume Entering the Intersection of

Dry Creek Road/Grove St

	AM	PM
Existing	1662	1865
Future Year	2146	2696

Description of Project Improvement:

Reconfigure northbound apprach to have a left-turn lane and a shared through/right-turn lane; change northbound to protected left-turn phasig. $1,500 for striping, $15,000 for signal work, $4,500 for traffic control, $10,000 for design; add 15% for inspection and a 25% contigency for a total buget of $44,562; budget $45,000.

Calculation of Project Share

P = T / (TB - TE)
where:
P = Equitable Share
T = Project trips during the affected peak hour
TB = Build-out volumes
TE = Existing volumes

T	17	22	
TB	2146	2696	
TE	1662	1865	**Average**
P	3.5%	2.6%	**3.1%**

Total Estimated Cost of Improvements	$45,000
Equitable Share Contribution	**$1,386**

Equitable Share (per Caltrans "Guide for the Preparation of Traffic Impact Studies")

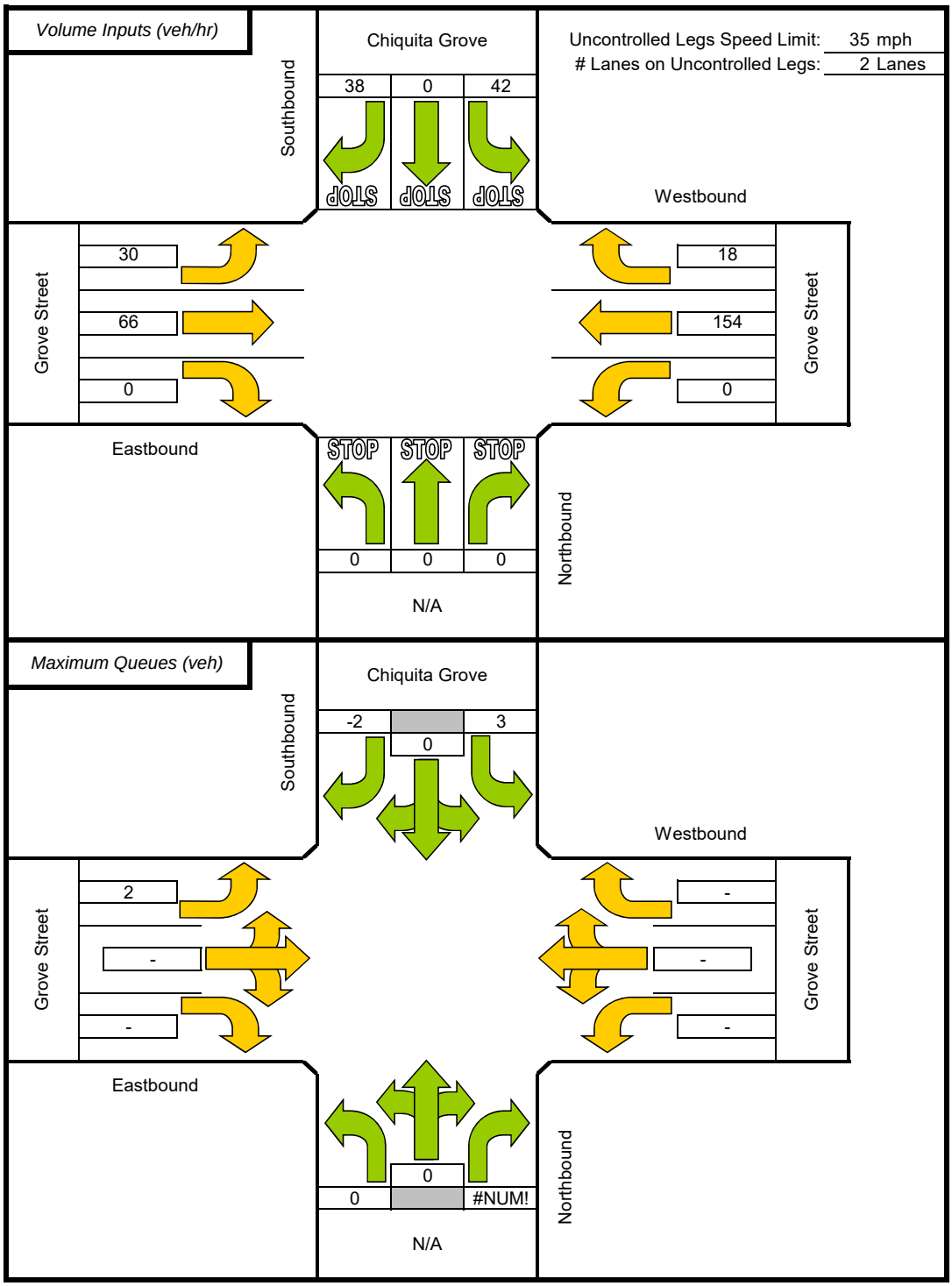
Appendix E

Access Analysis

Maximum Queue Length
Two-Way Stop-Controlled Intersections

Through Street: Grove Street
Side Street: Chiquita Grove

Scenario: Future AM + Prj
Stop Controlled Legs: North/South

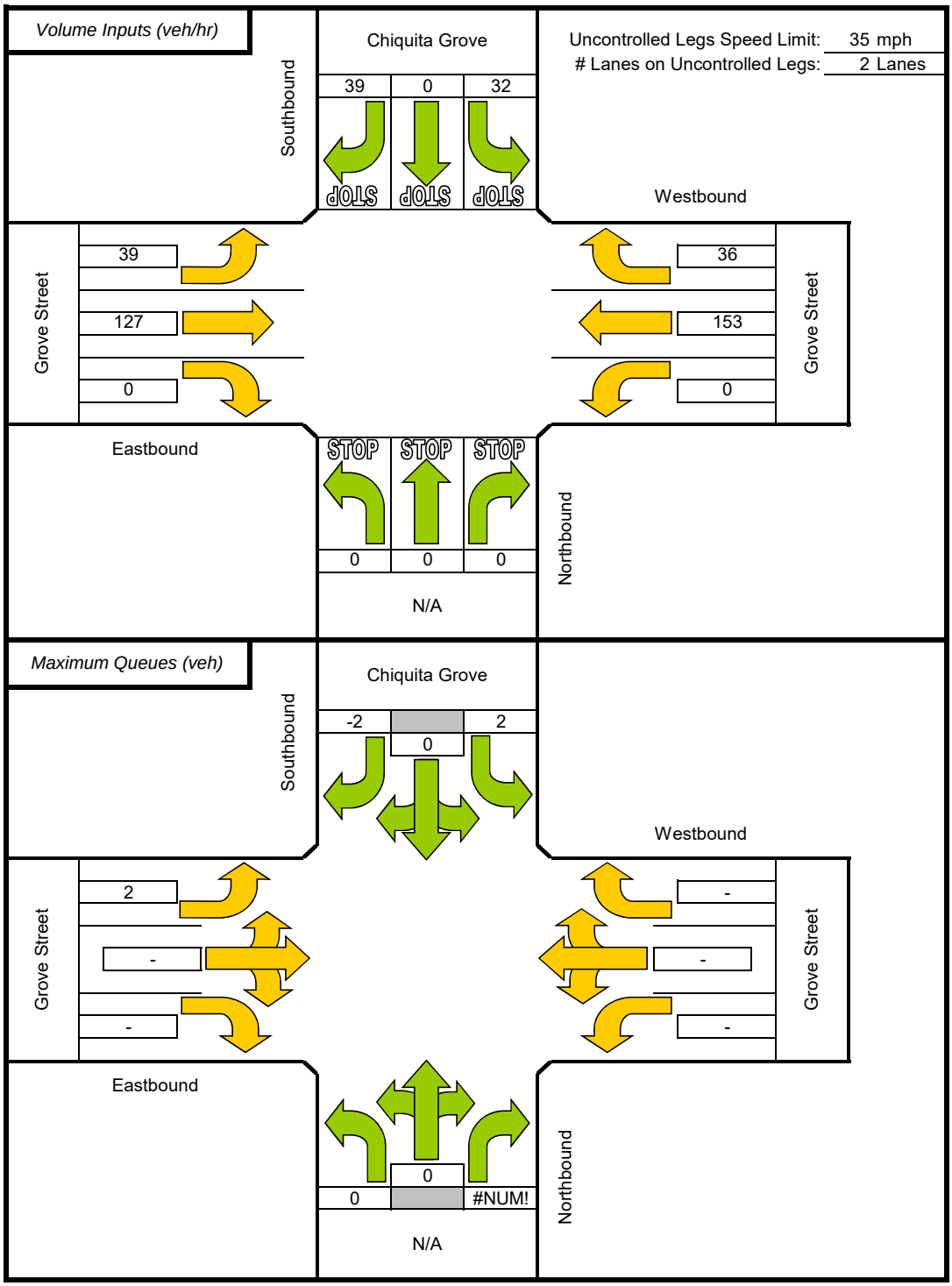


Source: John T. Gard, ITE Journal, November 2001, "Estimating Maximum Queue Length at Unsignalized Intersections"

Maximum Queue Length
Two-Way Stop-Controlled Intersections

Through Street: Grove Street
Side Street: Chiquita Grove

Scenario: Future PM + Prj
Stop Controlled Legs: North/South



Source: John T. Gard, ITE Journal, November 2001, "Estimating Maximum Queue Length at Unsignalized Intersections"

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: The Oaks at Foss Creek Project Access
Study Scenario: Future AM + Prj

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Chiquita Road

Westbound Volumes (veh/hr)

Through Volume = 41

Right Turn Volume = 7

Chiquita Road

Eastbound Volumes (veh/hr)

56 = Through Volume

0 = Left Turn Volume

Project Access Road

Westbound Speed Limit: 30 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 30 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	997.6
Advancing Volume	Va =	48
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	48
If AV<Va then warrant is met		-

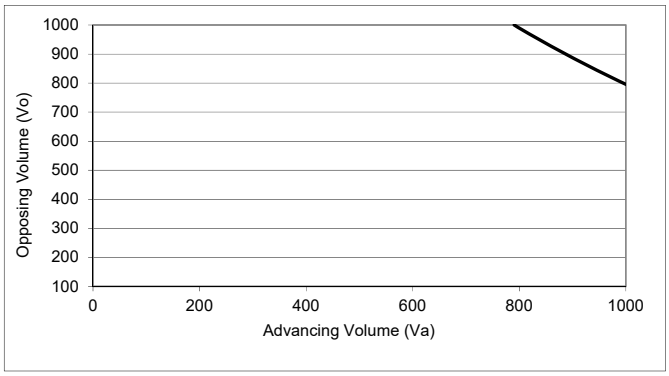
Right Turn Taper Warranted: **NO**

Eastbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %

Advancing Volume Threshold AV 2384 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

——— Two lane roadway warrant threshold for: 30 mph

Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: The Oaks at Foss Creek Project Access
Study Scenario: Future PM + Prj

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Chiquita Road

Westbound Volumes (veh/hr)

Through Volume = 49

Right Turn Volume = 26

Chiquita Road

Eastbound Volumes (veh/hr)

56 = Through Volume

0 = Left Turn Volume

Project Access Road

Westbound Speed Limit: 30 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 30 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	855.1
Advancing Volume	Va =	75
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	640
Advancing Volume	Va =	75
If AV<Va then warrant is met		No

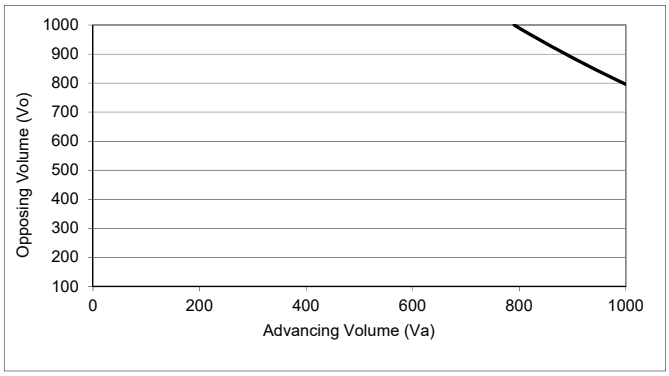
Right Turn Taper Warranted: **NO**

Eastbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %

Advancing Volume Threshold AV 2362 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 30 mph

Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Memorandum

Date: November 3, 2016

Project: HEA061

To: Ms. Elizabeth Johnson
First Carbon Solutions

From: Dalene J. Whitlock
dwhitlock@w-trans.com
Briana Byrne
bbyrne@w-trans.com

Subject: General Plan Amendment

As requested, W-Trans has prepared a high level qualitative review of the potential impacts related to the re-designation of three parcels in the City of Healdsburg, APN 089-013-015, 089-013-016, and 089-013-016, from light industrial to medium density residential housing. Currently, each of the three parcels is occupied by a single family dwelling though the parcels are zoned for light industrial use.

Current General Plan

Two studies were recently completed by W-Trans for projects near the parcels being considered for rezoning, *Traffic Impact Study for the 110 Dry Creek* (2016) and the *Traffic Impact Study for the Oaks at Foss Creek* (2016). Based on the future volumes projected in these studies, developed from the SCTA 2040 model, the intersections of the US 101 Ramps with Dry Creek Road are expected to operate deficiently. To address this condition funds are being collected to signalize these intersections. With signalization, the intersections are expected to operate acceptably at LOS D. All other intersections in the area are expected to operate acceptably with improvements along Dry Creek Road that have previously been recommended.

General Plan Amendment

There are currently single family homes on each of the three parcels. Since the future volumes were projected based on traffic counts that captured trips associated with the occupied homes, the trips generated from these parcels under their current use would be included in the future volumes.

With the re-designation of the three parcels to medium residential land use, there could be up to nine residences, or a maximum net increase of six units. The anticipated potential increase in trips was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 9th Edition, 2012 for "Single Family Detached Housing" (ITE LU #210). Using the rate for this land use, the proposed general plan amendment would be expected to result in an increase of up to six p.m. peak hour trips over existing site development. The net increase would, however, be reduced by the number of trips that would have been assumed for development under the existing industrial land use designation. The amount of industrial development included in the general plan analysis would likely generate minimal peak hour trips, but with these trips deducted the net increase would be slightly less than six p.m. peak hour trips.

Conservatively assuming that six additional trips would be added to the street network, it is reasonable to conclude that the change in land use would result in a less than significant impact as the planned improvements along Dry Creek Road would provide adequate capacity to accommodate the minimal increase in trips due to the re-designation of the three parcels.

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