“I”

Traffic Study and Addendum

Hyde Winery P17-00026
Planning Commission Hearing Date (September 2, 2020)

July 28, 2020

Mr. Christopher Hyde
Larry Hyde & Sons Winery
3520 Los Carneros Avenue
Napa, CA 94559

Addendum to the *Traffic Study for the Hyde Winery Expansion*

Dear Mr. Hyde;

In the *Traffic Impact Study for the Hyde Winery Expansion* (TIS), September 14, 2018, it was noted that the proposed expansion of the Hyde Winery would have a potentially significant impact at the intersection of SR 12-121/Los Carneros Avenue during both the weekday evening and weekend midday peak periods. This finding was based on the County's significance criterion, which establishes a threshold percentage as to the amount of traffic a project can add to an intersection that is already operating deficiently, such as the northbound Los Carneros Avenue approach to SR 12-121. While the TIS indicated that the County could consider the impact acceptable because a traffic signal is not warranted, this addendum proposes an alternate means of addressing this impact.

Standards of Significance

The County's policy states that a project would cause a significant impact requiring mitigation if, for existing conditions:

- *An unsignalized intersection operates at LOS E or F during the selected peak hours without Project trips, and the project contributes ten percent or more of the traffic on a side-street approach for side-street stop-controlled intersections; the peak hour traffic signal criteria should also be evaluated and presented for informational purposes.*
  - *Side-Street Stop-Controlled Intersections – The following equation should be used if the side-street stop-controlled intersection operates at LOS E or F without the Project:*
    - *Project Contribution % = Project Trips ÷ Existing Volumes*

Further, a project would cause a significant impact requiring mitigation if, for cumulative (future) conditions, the Project's volume is equal to, or greater than five percent of the difference between cumulative (future) and existing volumes.

- *Cumulative Conditions* – A *Project's contribution to a cumulative condition would be calculated as the Project's percentage contribution to the total growth in traffic. This calculation applies to arterials, signalized intersections, and unsignalized intersections.*
  - *Project Contribution % = Project Trips ÷ (Cumulative Volumes – Existing Volumes)*

Proposed Project Trip Generation

The project as proposed would result in an increase in both employees and visitors. Table 7 from the TIS has been expanded to indicate how this increase in trips would translate to employee and visitor trips. Note that this version of the table supersedes the one in the TIS.

Table 7 – Trip Generation Summary						
Scenario ***Generator***	**Weekday PM Peak Hour**			**Weekend MD Peak Hour**		
	Trips	**In**	**Out**	**Trips**	**In**	**Out**
Existing	10	3	7	14	7	7
Employees	*4*	*0*	*4*	*6*	*3*	*3*
Visitors	*6*	*3*	*3*	*8*	*4*	*4*
Proposed	46	15	31	64	32	32
Employees	*9*	*1*	*8*	*13*	*6*	*7*
Visitors	*37*	*14*	*23*	*51*	*26*	*25*
Net New Trips	**36**	**12**	**24**	**50**	**25**	**25**
With Proposed Mitigation	23	15	8	39	32	7
Employees	*9*	*1*	*8*	*13*	*6*	*7*
Visitors	*14*	*14*	*0*	*26*	*26*	*0*
Net New Trips with Mitigation	**13**	**12**	**1**	**25**	**25**	**0**

Existing plus Project and Baseline plus Project Conditions

As noted in the TIS, the incremental increase in trips associated with the project exceeds the 10-percent threshold indicated in the County's criteria for short-term traffic operation. A review of the volumes indicates that the project could add a maximum of four outbound trips during the weekday p.m. peak hour or one during the weekend midday peak hour without exceeding this 10-percent threshold. It is further noted that the number of net new outbound trips for both peak hours is within one trip of the total number of outbound visitor trips for that peak hour. Elimination of the 23 weekday and 25 weekend peak hour outbound trips by visitors would result in an acceptable change in volumes (less than 10 percent) approaching SR 12-121 on Los Carneros Road as there would be only one more trip during the weekday peak hour and the same number during the weekend peak hour.

Finding: By scheduling tastings such that none would end during the weekday and weekend peak hours, the potential impact at SR 12-121/Los Carneros Road would be less-than-significant under the County's adopted policy.

Future plus Project Conditions

Under the criterion for future operation, the contribution in trips to all movements is included and may not exceed 5 percent of the total increase in trips between existing and future conditions. The potential for a change in winery operation to eliminate outbound trips during peak hours was tested and determined to be feasible and adequate to achieve a less-than-significant impact under long-term volumes.

Finding: An operational change to eliminate outbound visitor trips during the weekday and weekend peak hours would result in a less-than-significant impact on cumulative traffic operation.

Recommendation: Tastings should be scheduled to ensure that none end and generate outbound trips between 4:00 and 5:00 p.m. on weekdays or between 3:45 and 4:45 p.m. on Saturdays. The elimination of these outbound trips approaching the stop control at SR 12-121 on Los Carneros Road would reduce the impact to a less-than-significant level.

A spreadsheet showing the changed volumes highlighted in yellow and the resulting findings is enclosed for reference.

We hope this information adequately addresses and mitigates the project's potential impact. Feel free to contact me if you have any further questions. Thank you for giving us the opportunity to provide these services.

Sincerely,

Dalene J. Whitlock, PE, PTOE
Senior Principal

DJW/djw/NAX109.L1

Enclosure: Significance Criteria Worksheet

County of Napa Significance Criteria

SIGNALIZED INTERSECTION CRITERIA

PM EXISTING

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				51		370	313	1092			1005	17

PM EXISTING PLUS PROJECT

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				51		370	313	1098			1013	17

Project Volume Contribution	0.49%
One Percent Threshold Exceeded?	**NO**

MD EXISTING

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				69		248	230	1114			917	18

MD EXISTING PLUS PROJECT

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				69		248	230	1127			922	18

Project Volume Contribution	0.69%
One Percent Threshold Exceeded?	**NO**

UNSIGNALIZED TWO-WAY STOP-CONTROLLED INTERSECTION CRITERIA

PM EXISTING

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	9	0	32	9	1	9	4	1121	9	26	1041	21
3	5		135					1127	12	81	1106	

PM EXISTING PLUS PROJECT

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	9	0	33	9	1	9	4	1117	15	32	1037	21
3	5		135					1135	12	81	1112	

	Minor Street Approaches		
	Int 2-NB	Int 2-SB	Int 3-NB
Project Volume Contribution	2%	0%	0%
Ten Percent Threshold Exceeded?	**NO**	**NO**	**NO**

MD EXISTING

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	3	1	13	10	0	14	4	1156	13	17	999	13
3	18		78					1158	28	68	1006	

MD EXISTING PLUS PROJECT

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	3	1	13	10	0	14	4	1147	26	29	991	13
3	18		78					1161	28	68	1018	

	Minor Street Approaches		
	Int 2-NB	Int 2-SB	Int 3-NB
Project Volume Contribution	0%	0%	0%
Ten Percent Threshold Exceeded?	**NO**	**NO**	**NO**

FUTURE CRITERIA

PM FUTURE

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				58		422	357	1245			1146	19
2	10	0	36	10	1	10	5	1278	10	30	1187	24
3	6		154					1285	14	92	1261	

PM FUTURE PLUS PROJECT

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				58		422	363	1245			1154	19
2	10	0	37	10	1	10	5	1274	16	36	1183	24
3	6		154					1293	14	92	1267	

	Int 1	Int 2	Int 3
Project Volume Contribution	3.51%	1.33%	4.06%
Five Percent Threshold Exceeded?	**NO**	**NO**	**NO**

MD FUTURE

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				79		283	262	1270			1045	21
2	3	1	15	11	0	16	5	1318	15	19	1139	15
3	21	0	89	0	0	0	0	1320	32	78	1147	0

MD FUTURE PLUS PROJECT

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				79		283	262	1283			1050	21
2	3	1	15	11	0	16	5	1309	28	31	1131	15
3	21		89					1323	32	78	1159	

	Int 1	Int 2	Int 3
Project Volume Contribution	4.95%	2.47%	4.55%
Five Percent Threshold Exceeded?	**NO**	**NO**	**NO**

Traffic Impact Study for the Hyde Winery Expansion

Prepared for the County of Napa

Submitted by
W-Trans

September 14, 2018

TRAFFIC ENGINEERING
TRANSPORTATION PLANNING
Balancing Functionality and Livability since 1995
w-trans.com

Table of Contents

Executive Summary

Hyde Winery seeks to modify the existing Use Permit to allow for an increase in the number of employees from two full-time and two part-time employees to five full-time and four part-time employees. An increase in visitation to allow for a maximum of 125 visitors per day is also proposed. Further, the Use Permit Modification would adjust the special event allowance to eight events with 55 attendees and two events with up to 150 attendees annually.

Using the County's winery trip generation assumptions, the proposed project would be expected to generate an average of 94 new daily trips on weekdays, including 36 weekday p.m. peak hour trips, and 88 new trips on weekends, including 50 peak hour trips. Accounting for pass-by trips, the project would add 28 trips during the weekday p.m. peak hour and 35 trips during the weekend peak hour.

The study area included the intersections of SR 12-121 with Old Sonoma Road, Los Carneros Avenue, and Cuttings Wharf Road. All three of the study intersections currently operate at an unacceptable service level during one or both peaks.

The study intersection of SR 12-121/Old Sonoma Road operates at an unacceptable LOS E during the evening peak hour and would be expected to continue operating unacceptably upon the addition of project traffic. Under anticipated future volumes, the intersection would operate unacceptably during both peak hours and continue doing so with the project. Because the project generates less than one percent of existing volumes and less than five percent of the anticipated future increase, the impact is considered less-than-significant under the County's standards.

SR 12-121/Los Carneros Avenue currently operates unacceptably at LOS F on the minor street approaches during both peak periods. The project-related volumes at the intersection exceed the County's level of significance for existing and future conditions. Warrants for signalization of the intersection are not met under current or future volumes, therefore the County may deem the impact less-than-significant under County policies.

The intersection of SR 12-121/Cuttings Wharf Road operates with unacceptable service levels on the minor street approaches during both peak hours under all scenarios evaluated; however, the project does not add traffic to the minor street approaches and adds less than five percent of the difference between future and existing volumes to the overall volumes at the intersection. Therefore, the impact is considered less-than-significant per County standards.

While the study area lacks pedestrian facilities or transit service, given the rural nature of the area it is reasonable to assume there would not be any pedestrian travel or demand for transit service, and therefore, the lack of facilities is considered acceptable. The project should provide ten bicycle parking spaces.

Access to the site occurs via Los Carneros Avenue. Sight lines along Los Carneros Avenue from the project driveway is adequate. Left-turn lanes are not warranted, and therefore not recommended, at the project's driveway on Los Carneros Avenue.

Introduction

This report presents an analysis of the potential traffic impacts that would be associated with the proposed increase in visitation and employees at the Hyde Winery located at 1044 Los Carneros Avenue in the County of Napa. The traffic study was completed in accordance with the criteria established by the County of Napa and is consistent with standard traffic engineering techniques.

Prelude

The purpose of a traffic impact study is to provide County staff and policy makers with data that they can use to make an informed decision regarding the potential traffic impacts of a proposed project, and any associated improvements that would be required to mitigate these impacts to a level of insignificance as defined by the County'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 Hyde Winery at 1044 Los Carneros Avenue is proposing a Use Permit Modification to increase the number of winery employees, increase daily tasting room visitors, and adjust their special event allowance. Hyde Winery is currently permitted for four regular season employees (two full-time and two part-time), 20 visitors per day, and 10 specials events per year for up to 30 people. The requested amendment to the Use Permit proposes nine regular season employees (five full-time and four part-time), a maximum of 125 visitors per day, and eight events with 55 attendees and two with up to 150 attendees annually. The location of the project site is shown in Figure 1.

nax109.ai 6/18

Traffic Impact Study for the Hyde Winery Expansion

Figure 1 – Study Area, Lane Configurations and Existing Traffic Volumes

Transportation Setting

Operational Analysis

Study Area and Periods

The study area consists of the following intersections:

1. SR 12-121/Old Sonoma Road
2. SR 12-121/Los Carneros Avenue
3. SR 12-121/Cuttings Wharf Road

Operating conditions during the weekday p.m. and weekend midday peak periods were evaluated as these time periods reflect the highest traffic volumes areawide and for the proposed project. The evening peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion of the day during the homeward bound commute, while the weekend midday peak occurs between 3:00 and 5:00 p.m.

Study Intersections

SR 12-121/Old Sonoma Road is a signalized tee intersection with protected left-turn phasing on the eastbound SR 12-121 approach. The southbound Old Sonoma Road approach includes a right-turn overlap phase.

SR 12-121/Los Carneros Avenue is a four-legged intersection stop-controlled at the north and south legs. Both legs include a right-turn flared lane.

SR 12-121/Cuttings Wharf Road is a tee intersection stop-controlled at the northbound Cuttings Wharf Road approach. The northbound approach includes a right-turn flared lane.

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, 2013 through December 31, 2017.

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 *2014 Collision Data on California State Highways*, California Department of Transportation (Caltrans). Two of the three study intersections experienced collisions at rates higher than the statewide averages for similar facilities. The collision rate calculations are provided in Appendix A.

Table 1 – Collision Rates at the Study Intersections			
Study Intersection	**Number of Collisions (2013-2017)**	**Calculated Collision Rate (c/mve)**	**Statewide Average Collision Rate (c/mve)**
1. SR 12-121/Old Sonoma Road	**24**	**0.50**	0.24
2. SR 12-121/Los Carneros Avenue	6	0.16	0.23
3. SR 12-121/Cuttings Wharf Road	**7**	**0.17**	0.16

Note: c/mve = collisions per million vehicles entering; **Bold** text indicates an above-average collision rate

Because the collision rates for SR12-121/Old Sonoma Road and SR 12-121/Cuttings Wharf Road were higher than the Statewide averages, the crashes at these locations were reviewed in greater detail.

Twenty of the 24 collisions that occurred at the intersection of SR 12-121/Old Sonoma Road involved only southbound vehicles. The predominant collision type was rear-end collisions, with 11 of the 24 being of this type, which is common at a signalized intersection where there is congestion, especially during peak periods. The primary collision factors were improper turn or unsafe speed. The percent of collisions resulting in injuries was 50.0 percent for the study period, compared to a 40.7 percent average Statewide. It is noted that there is a "Signal Ahead" sign together with pavement markings and a flashing beacon on the southbound approach to the intersection, so there do not appear to be any engineering solutions to address the collision history at this location. It is suggested that the County work with the California Highway Patrol to increase or focus enforcement in this area to address this situation.

While the rate at SR 12-121/Cuttings Wharf Road was above average, it is only marginally so and with 28.6 percent of crashes resulting in injury, this rate is well below the Statewide average of 39.2 percent. The below-average incidence of injuries indicates that this intersection does not have a specific safety problem despite the slightly above-average collision rate.

Alternative Modes

Pedestrian Facilities

Given the rural location of the project site, pedestrian trips are not anticipated except within the site.

Bicycle Facilities

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

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

In the project area, Class II bike lanes exist on Cuttings Wharf Road and on segments of SR 12. There are proposed Class II bike lanes on Old Sonoma Road and planned extensions of the existing Class II bike lanes on SR 12. Bicyclists ride in the roadway 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 *Napa County Bicycle Plan.*

Table 2 – Bicycle Facility Summary				
Status **Facility**	**Class**	**Length (miles)**	**Begin Point**	**End Point**
Existing				
Cuttings Wharf Road	II	2.50	SR 12	Napa River
SR 12	II	1.20	Stanly Ln	Cuttings Wharf Road
Planned				
Old Sonoma Road	II	2.42	SR 12	Congress Valley Rd
SR 12	II	1.03	Duhig Rd	Cuttings Wharf Rd
SR 12	II	1.97	Napa/Sonoma County Line	Duhig Rd

Source: *Napa County Bicycle Plan,* W-Trans, 2012

Transit Facilities

Given the rural location of the project site, there are no bus stops within walking distance of the site.

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 of SR 12-121/Los Carneros Avenue and SR 12-121/Cuttings Wharf Road, 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 intersection of SR 12-121/Old Sonoma Road was evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using actual signal timing provided by Caltrans. 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

Napa County

In the Circulation Element of the *Napa County General Plan*, the following policies have been adopted:

- **Policy CIR-13** – *The County seeks to provide a roadway system that maintains current roadway capacities in most locations and is both safe and efficient in terms of providing local access.*

- **Policy CIR-16** – *The County shall seek to maintain an arterial Level of Service D or better on all county roadways, except where maintaining this desired level of service would require the installation of more travel lanes than shown on the Circulation Map.* SR 12-121 is shown as a 2-lane Rural Throughway on the Circulation Map (Figure CIR-1).

- **Policy CIR-18** – *Traffic safety and adequate local access will be priorities on roadway segments and at signalized intersections where Level of Service D or better cannot be achieved. Therefore, proposed capital improvements and development projects in these areas shall be evaluated to determine their effect on safety or local access. Projects that improve safety, improve local access, or alleviate congestion will be prioritized.*

To provide a more quantitative method of adhering to the above standards, the County refers to G*uidelines for Interpretation of General Plan Circulation Policies on Significance Criteria* (Fehr & Peers, 2015). The document establishes thresholds of significance for road segments and different intersection control types. The memorandum states a project would cause a significant impact requiring mitigation if, for existing conditions:

- *A signalized intersection operates at LOS A, B, C, or D during the selected peak hours without Project trips, and the LOS deteriorates to LOS E or F with the addition of Project trips; or*

- *A signalized intersection operates at LOS E or F during the selected peak hours without Project trips, and the addition of Project trips increases the total entering volume by one percent or more.*
  - *Project Contribution % = Project Trips ÷ Existing Volumes*

- *An unsignalized intersection operates at LOS A, B, C, or D during the selected peak hours without Project trips, and the LOS deteriorates to LOS E or F with the addition of Project traffic; the peak hour traffic signal warrant criteria should also be evaluated and presented for informational purposes; or*

- *An unsignalized intersection operates at LOS E or F during the selected peak hours without Project trips, and the project contributes one percent or more of the total entering traffic for all-way stop-controlled intersections, or ten percent or more of the traffic on a side-street approach for side-street stop-controlled intersections; the peak hour traffic signal criteria should also be evaluated and presented for informational purposes. Both of those volumes are for the stop-controlled approaches only. Each stop-controlled approach that operates at LOS E or F should be analyzed individually*
  - *<u>All-Way Stop-Controlled Intersections</u> – The following equation should be used if the all-way stop-controlled intersection operates at LOS E or F without the Project:*
    - *Project Contribution % = Project Trips ÷ Existing Volumes*
  - *<u>Side-Street Stop-Controlled Intersections</u> – The following equation should be used if the side-street stop-controlled intersection operates at LOS E or F without the Project:*
    - *Project Contribution % = Project Trips ÷ Existing Volumes*

Further, a project would cause a significant impact requiring mitigation if, for cumulative (future) conditions, the Project's volume is equal to, or greater than five percent of the difference between cumulative (future) and existing volumes.

- <u>Cumulative Conditions</u> – A *Project's contribution to a cumulative condition would be calculated as the Project's percentage contribution to the total growth in traffic. This calculation applies to arterials, signalized intersections, and unsignalized intersections.*
  - *Project Contribution % = Project Trips ÷ (Cumulative Volumes – Existing Volumes)*

Caltrans

Although the study intersections are within Napa County limits, Caltrans has jurisdiction over any intersection that includes a State Route, such as the three study intersections. Caltrans indicates that they endeavor to maintain operation at the transition from LOS C to LOS D.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the weekday p.m. and weekend midday peak periods. This condition does not include project-generated traffic volumes. Volume data was collected on Thursday April 5, 2018 and Saturday, April 14, 2018. A seasonal adjustment factor was applied to the weekday volumes to arrive at typical August Thursday traffic conditions. Copies of the counts are provided in Appendix B.

Intersection Levels of Service

Under existing conditions, the intersections of SR 12-121/Los Carneros Avenue and SR 12-121/Cuttings Wharf Drive are operating at LOS A overall during the weekday evening and weekend midday peak periods, but unacceptably at LOS E or F on the stop-controlled approaches. The intersection of SR 12-121/Old Sonoma Road is operating unacceptably at LOS E during the weekday p.m. peak hour and acceptably during the weekend midday peak hour at LOS C under existing conditions. The existing traffic volumes are shown in Figure 1. A summary of the intersection level of service calculations is contained in Table 4, and copies of the Level of Service calculations are provided in Appendix C.

Table 4 – Existing Peak Hour Intersection Levels of Service

	Study Intersection ***Approach***	**Weekday PM Peak**		**Weekend MD Peak**	
		Delay	**LOS**	**Delay**	**LOS**
1.	SR 12-121/Old Sonoma Road	***58.7***	***E***	34.8	C
2.	SR 12-121/Los Carneros Avenue	2.9	A	1.6	A
	Northbound (Los Carneros Ave) Approach	***80.2***	***F***	***50.0***	***F***
	Southbound (Driveway) Approach	**	***F***	***104.6***	***F***
3.	SR 12-121/Cuttings Wharf Road	3.2	A	2.9	A
	Northbound (Cuttings Wharf Rd) Approach	***49.9***	***E***	***63.1***	***F***

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

According to Policy CIR-12 of the *Napa County General* Plan, roadway improvements at entrances to the County shall be carefully considered and capacity improvements will generally not be made to key entrances, which includes Highway 121 from Sonoma County.

On sections of certain arterial streets, it is typical to have all side street approaches operating at LOS E or F with long traffic delays, even where side street volumes are very low. It may be operationally, physically, and/or

financially infeasible to provide mitigation which would allow LOS D or better operation for all side streets during peak hours. The most typical mitigation measure used to improve operation for the side street is a traffic signal, and it is both operationally and financially undesirable to provide a traffic signal at every intersection.

Baseline Conditions

Existing plus Approved volumes were developed to include trips from other approved and pending projects that would add traffic to the study intersections. The following projects were included to evaluate Existing plus Approved conditions:

- **Cuvaison Winery** – 340,000-gallon winery at 1221 Duhig Road, south of SR 12-121 with up to 180 visitors per day and 28 regular season employees.
- **Hudson Vineyards Winery** – 80,000-gallon winery at 5398 Sonoma Highway, north of SR 12-121 with up to 120 visitors per day and 16 employees.
- **Mahoney Vineyards** – 30,000-gallon winery at 1134 Dealy Lane, with 15 visitors and two employees per day, located north of SR 12-121 and east of Old Sonoma Road.
- **Sleeping Giant** – 30,000-gallon winery at 2258 Las Amigas Road, south of SR 12-121 with eight visitors and 10 employees.

Under Baseline conditions, SR 12-121/Los Carneros Avenue and SR 12-121/Cuttings Wharf Drive are expected to continue operating at LOS A overall, but unacceptably on the minor street approaches. SR 12-121/Old Sonoma Road is expected to continue operating at LOS E during the weekday evening peak hour and fall to LOS D during the weekend midday peak hour. These results are summarized in Table 5 and Baseline volumes are shown in Figure 2.

Table 5 – Baseline Peak Hour Intersection Levels of Service

	Study Intersection ***Approach***	**Weekday PM Peak**		**Weekend MD Peak**	
		Delay	**LOS**	**Delay**	**LOS**
1.	SR 12-121/Old Sonoma Road	**60.0**	**E**	36.9	D
2.	SR 12-121/Los Carneros Avenue	3.2	A	1.7	A
	Northbound (Los Carneros Ave) Approach	**87.4**	**F**	**52.4**	**F**
	Southbound (Driveway) Approach	**	***F***	***112.8***	***F***
3.	SR 12-121/Cuttings Wharf Road	3.6	A	3.2	A
	Northbound (Cuttings Wharf Rd) Approach	***55.5***	***F***	***66.3***	***F***

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

Future Conditions

Future volumes for the horizon year 2040 were calculated based on output from the *Napa Solano Travel Demand Model*, maintained by the Solano Transportation Authority (STA). Base year (2015) and future (2040) segment volumes for the weekday p.m. peak period were used to calculate growth factors for the study intersections and roadway segments.

The same growth factors used for the weekday p.m. peak hour were used for the weekend midday peak hour as the model does not contain information for weekend days. Volumes at the intersection of SR 12-121 and Old Sonoma Road are expected to grow by a factor of 1.14. There are no projected growth volumes on the *Napa*

nax109.ai 6/18

Traffic Impact Study for the Hyde Winery Expansion

Figure 2 – Baseline Traffic Volumes

Solano Travel Demand Model for Cuttings Wharf Road and model volumes at the intersection of SR 12-121 and Los Carneros Avenue indicate a growth of only two percent over 22 years which appears to be unreasonably low so the growth factor of 1.14 was applied for SR 12-121/Cuttings Wharf Road and SR 12-121/Los Carneros Avenue to project future volumes at these locations.

Under the anticipated future volumes, SR12-121/Los Carneros Avenue and SR 12-121/Cuttings Wharf Road are expected to continue operating acceptably at LOS A overall, though delays on the stop-controlled approaches are expected to continue increasing. The study intersection of SR 12-121/Old Sonoma Road is expected to operate unacceptably at LOS E during both peak hours. Future volumes are shown in Figure 3 and operating conditions are summarized in Table 6.

Table 6 – Future Peak Hour Intersection Levels of Service

	Study Intersection ***Approach***	**Weekday PM Peak**		**Weekend MD Peak**	
		Delay	**LOS**	**Delay**	**LOS**
1.	SR 12-121/Old Sonoma Road	**82.4**	**E**	**57.4**	**E**
2.	SR 12-121/Los Carneros Avenue	9.4	A	3.3	A
	Northbound (Los Carneros Ave) Approach	**	***F***	***77.4***	***F***
	Southbound (Driveway) Approach	**	***F***	**	***F***
3.	SR 12-121/Cuttings Wharf Road	6.6	A	6.0	A
	Northbound (Cuttings Wharf Rd) Approach	***108.5***	***F***	**	***F***

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

Project Description

The project is a change in use at an existing winery facility to increase the number of employees and visitation. The proposal would increase visitation from the current level of 20 per day to 125 visitors per day. The number of employees would increase from the permitted two full-time and two part-time to five full-time and four part-time. The largest marketing event would include 150 visitors. An existing driveway from Los Carneros Avenue provides access to the winery. The proposed project site plan is shown in Figure 4.

Trip Generation

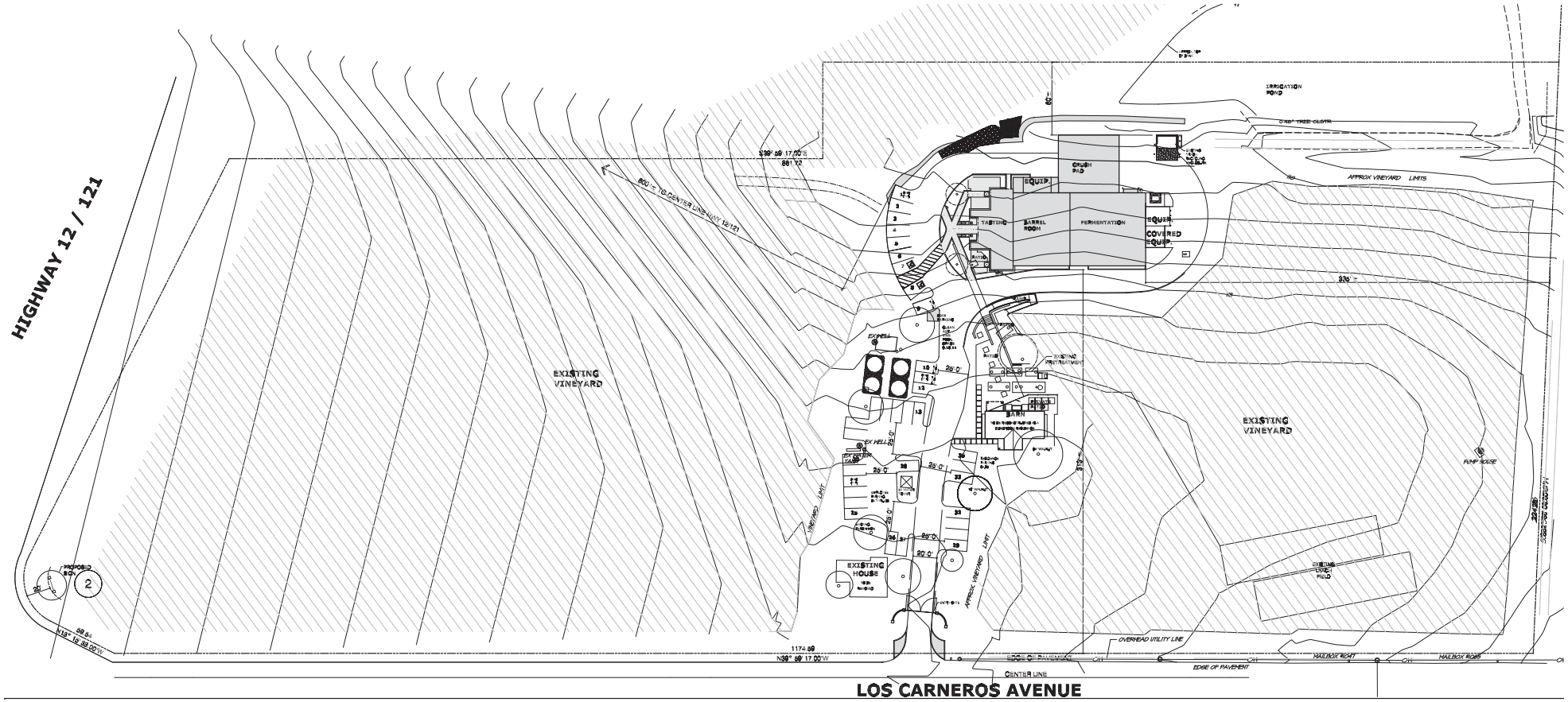
The County of Napa's Winery Traffic Information/Trip Generation Sheet was used to determine the anticipated traffic generated with the current staff, visitation and events as well as what would be generated with the proposed change in use at the site. Copies of the worksheets for both Existing and Proposed conditions are provided in Appendix D.

As the County of Napa's Winery Traffic Information/Trip Generation Sheet does not include guidance on inbound versus outbound trips during the peak hours, it was assumed that two-thirds of trip ends at the winery would be outbound during the weekday p.m. peak hour since most of the trips would be associated with employees and customers leaving at closure of the winery. For the Saturday midday peak-hour it was assumed that inbound and outbound trip ends would be evenly split.

nax109.ai 6/18

Traffic Impact Study for the Hyde Winery Expansion

Figure 3 – Future Traffic Volumes



North

Not to Scale

Source: James S. McCracken, Architect 3/17

nax109.ai 6/18

Traffic Impact Study for the Hyde Winery Expansion

Figure 4 – Site Plan

W-Trans

Pass-by Trips

According to the 2014 *Napa County Travel Behavior Study* prepared by Fehr & Peers for the Napa County Transportation and Planning Agency, the average number of wineries groups planned to visit was 3.1. Therefore, two out of three trips to Hyde Winery are drawn from existing traffic to other nearby wineries. These vehicle trips are not considered "new," but are instead comprised of drivers who are already driving on the adjacent street system and choose to make an interim stop, and are referred to as "pass-by." At the proposed project, pass-by trips would be "captured" from traffic on SR12-121.

The proposed project is expected to generate an increase of 94 trip ends per day compared to permitted conditions, including an increase of 36 trips during the weekday p.m. peak hour and 50 trips during the weekend peak hour; these values were applied at the driveway and used to determine turning movements at SR 12-121/Los Carneros Avenue. The pass-by deduction was applied to inbound visitor trips only, resulting in eight pass-by trips during the weekday p.m. peak hour and 15 during the weekend midday peak hour.

The trip generation estimates for the proposed project without application of the pass-by rates are shown in Table 7. Pass-by volumes are shown in Figure 5.

Table 7– Trip Generation Summary

Scenario	Daily		Weekday PM Peak Hour			Weekend MD Peak Hour		
	Weekday	Weekend	Trips	In	Out	Trips	In	Out
Existing	26	24	10	3	7	14	7	7
Proposed	120	112	46	15	31	64	32	32
Net New Trips	**94**	**88**	**36**	**12**	**24**	**50**	**25**	**25**

Note: Trip generation as estimated above does not include special events

In addition to typical daily operation, the anticipated trip generation for the largest proposed event, one with 150 guests, was also estimated as shown in Table 8. Using the County's Winery Traffic Information/Trip Generation Form, a 150-person marketing event would be expected to generate a total of 131 trips, including 107 trips for guests, 20 trips for employees, and 4 trips for special event trucks. To estimate the peak hour trip generation, it was assumed that all guests would be arriving at the site during the peak hour on either weekdays or weekend days. Event employees would arrive outside of the arrival and departure hours of the guests as they would be expected to be on-site for set-up and clean-up and are therefore not included in the peak hour totals. Similarly, the trucks associated with such events would be expected to arrive at and depart from the site outside of the weekday and weekend peak hours for guests.

Table 8 – Trip Generation for 150-Person Events

Trip Generator	Units	Total	Weekday PM Peak Hour			Weekend MD Peak Hour		
		Trips	Trips	In	Out	Trips	In	Out
Event Employees	10	20	0	0	0	0	0	0
Event Guests	150	107	54	54	0	54	54	0
Event Trucks	2	4	0	0	0	0	0	0
Total		**131**	**54**	**54**	**0**	**54**	**54**	**0**

nax109.ai 6/18

Traffic Impact Study for the Hyde Winery Expansion

Figure 5 – Pass-By and Project Only Traffic Volumes

Trip Distribution

The pattern used to allocate new project trips to the street network was determined based on familiarity with the area and surrounding region as well as likely origins and destinations for patrons of the project. It is anticipated that trips would be split evenly to/from the east and west via SR 12-121.

Intersection Operation

Existing plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, the study intersection at SR 12-121/Los Carneros Avenue is expected to experience increased delay during both peak hours. The other two study intersections incur only minor changes to delay during both peak hours. These results are summarized in Table 9. Project traffic volumes are shown in Figure 5.

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

	Study Intersection ***Approach***	**Existing Conditions**				**Existing plus Project**			
		Weekday PM Peak		**Weekend MD Peak**		**Weekday PM Peak**		**Weekend MD Peak**	
		Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1.	SR 12-121/Old Sonoma Road	**58.7**	**E**	34.8	C	**59.4**	**E**	35.2	D
2.	SR 12-121/Los Carneros Avenue	2.9	A	1.6	A	9.5	A	4.1	A
	NB (Los Carneros Ave) Approach	***80.2***	***F***	***50.0***	***F***	**	***F***	**	***F***
	SB (Los Carneros Ave) Approach	**	***F***	***104.6***	***F***	**	***F***	**	***F***
3.	SR 12-121/Cuttings Wharf Road	3.2	A	2.9	A	3.3	A	3.0	A
	NB (Cuttings Wharf Rd) Approach	***49.9***	***E***	***63.1***	***F***	***51.0***	***F***	***64.6***	***F***

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

Finding – All three of the study intersections currently operate at an unacceptable service level during one or both peaks, and would continue doing so upon adding project-generated traffic.

- Upon the addition of the project-related traffic to the Existing volumes, the study intersection of SR 12-121/Old Sonoma Road is expected to continue operating unacceptably at LOS E during the weekday p.m. peak hour. However, project trips would comprise 0.49 percent of the total entering volumes during the p.m. peak hour and 0.69 percent during the midday peak hour, which do not exceed the one percent threshold. This would therefore be a less-than-significant impact.

- Traffic delays on the stop-controlled northbound Los Carneros Avenue approach increase with the addition of project-related traffic during both peak hours and the project contributes 60 percent of the traffic on this approach during the weekend peak hour and 37 percent during the weekday peak hour, which exceed the ten percent threshold. This is considered a potentially significant impact by County standards. The guidance indicates that signal warrants should be evaluated, but does not indicate whether the impact would be reduced to less-than-significant if the warrant is not met. The volumes are well below the 100-trip threshold, so the Peak Hour Volume Warrant is not met for either peak hour; therefore, it is suggested that the impact

under this scenario be deemed less-than-significant. A copy of the warrant analysis is provided in Appendix E.

- Similarly, average delay on the Cuttings Wharf Road approach to SR 12-121 is anticipated to increase upon adding project-generated traffic, with LOS E or F operation without or with the project. The project is not expected to add any trips to the stop-controlled approach, so with less than a ten percent contribution to side-street traffic, the impact is considered less-than-significant. A spreadsheet indicating how the County of Napa significance criteria were evaluated is provided in Appendix F.

Baseline plus Project Conditions

With project-related traffic added to Baseline volumes, the study intersections are expected to continue operating unacceptably during one or both peak hours under the County's criteria. These results are summarized in Table 10.

Table 10 – Baseline and Baseline plus Project Peak Hour Intersection Levels of Service

	Study Intersection ***Approach***	**Baseline Conditions**				**Baseline plus Project**			
		Weekday PM Peak		**Weekend MD Peak**		**Weekday PM Peak**		**Weekend MD Peak**	
		Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1.	SR 12-121/Old Sonoma Road	**60.0**	**E**	36.9	D	**60.7**	**E**	37.5	D
2.	SR 12-121/Los Carneros Avenue	3.2	A	1.7	A	10.4	B	4.5	A
	NB (Los Carneros Ave) Approach	***87.4***	***F***	***52.4***	***F***	**	***F***	**	***F***
	SB (Los Carneros Ave) Approach	**	***F***	***112.8***	***F***	**	***F***	**	***F***
3.	SR 12-121/Cuttings Wharf Road	3.6	A	3.2	A	3.7	A	3.3	A
	NB (Cuttings Wharf Rd) Approach	***55.5***	***F***	***66.3***	***F***	***56.8***	***F***	***67.9***	***F***

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

Finding – All three study intersections operate unacceptably during one or both peak periods.

- The intersection of SR 12-121/Old Sonoma Road would be expected to continue operating at LOS E during the weekday p.m. peak hour and LOS D during the weekend midday peak hour with the addition of project trips. Project generated trips would be 0.48 and 0.72 percent of the total entering volumes during the weekday p.m. peak hour and weekend midday peak hour, respectively. These are less than one percent, so considered less-than-significant.

- Delays on the stop-controlled approaches of SR 12-121/Los Carneros Avenue are expected to increase substantially upon adding project-generated traffic to baseline conditions. Both Los Carneros approaches would continue to operate unacceptably at LOS F during both peak hours. The project contribution of traffic at this approach exceeds the 10 percent threshold during both peak periods, which is a potentially significant impact per County standards. A signal warrant analysis for Baseline plus Project volumes (copy in Appendix E) indicates that a signal is not warranted at SR 12-121/Los Carneros Avenue. For this reason, the County should consider deeming the impact at this location less-than-significant.

- As noted for Existing plus Project Conditions, while the Cuttings Wharf Road approach to SR 12-121 operates at LOS F and would experience a minor increase in delay due to project-added traffic on SR 12-121, because

the project adds no trips to the stop-controlled side-street movement, the impact is considered less-than-significant.

Future plus Project Conditions

Upon the addition of project-generated traffic to the anticipated Future volumes, the stop-controlled approaches of SR 12-121/Los Carneros Avenue and SR 12-121/Cuttings Wharf Drive would be expected operate at LOS F during both peak hours. The intersection of SR 12-121/Old Sonoma Road would be expected to operate unacceptably at LOS F during the p.m. peak period and at LOS E during the weekend midday peak period. The Future plus Project operating conditions are summarized in Table 11.

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

	Study Intersection ***Approach***	**Future Conditions**				**Future plus Project**			
		Weekday PM Peak		**Weekend MD Peak**		**Weekday PM Peak**		**Weekend MD Peak**	
		Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1.	SR 12-121/Old Sonoma Road	**82.4**	**E**	**57.4**	**E**	**83.3**	**F**	**58.3**	**E**
2.	SR 12-121/Los Carneros Avenue	9.4	A	3.3	A	25.9	D	10.1	B
	NB (Los Carneros Ave) Approach	**	***F***	***77.4***	***F***	**	***F***	**	***F***
	SB (Los Carneros Ave) Approach	**	***F***	**	***F***	**	***F***	**	***F***
3.	SR 12-121/Cuttings Wharf Road	6.6	A	6.0	A	6.8	A	6.1	A
	NB (Cuttings Wharf Rd) Approach	***108.5***	***F***	**	***F***	***112.4***	***F***	**	***F***

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

Finding – All three study intersections are expected to experience further increases in delay under Future plus Project volumes.

- The intersection of SR 12-121/Old Sonoma Road would operate unacceptably at LOS F and E during the weekday p.m. peak hour and weekend midday peak hour, respectively, without and with project-generated trips added. The project's impact would be significant if it contributes five percent or more of the increase in traffic over existing volumes; this project adds 3.5 percent of the difference between future and existing volumes at SR 12-121/Old Sonoma Road during the weekday p.m. peak hour and 4.9 percent of the difference during the weekend midday peak hour. This would therefore be a less-than-significant impact.

- The study intersection of SR 12-121/Los Carneros Avenue would continue to experience unacceptable operation of LOS F at the minor street approaches during both peak hours without and with project-related traffic. The County applies the same five percent threshold of significance to unsignalized intersections as it does for signalized intersections. The project volumes represent 8.8 and 10.5 percent of the increase during the weekday and weekend peak hours, exceeding the five percent threshold between future and existing volumes at the intersection. This is considered a potentially significant impact under the County's standards. Further analysis indicates that a traffic signal would not be warranted under Future plus Project volumes during either peak hour, as shown on the warrant spreadsheets in Appendix E. The County may therefore consider the impact less-than-significant.

- Though delays would also increase at SR 12-121/Cuttings Wharf Drive, the project adds 4.1 percent of the difference between future and existing volumes at the intersection during the weekday evening peak hour

and 4.6 percent during the weekend midday peak hour, which are less than the five percent County threshold. Therefore, the impact at this location is less-than-significant.

Future plus Project plus 150-Person Event Conditions

The study intersections were evaluated under the worst-case highest-volume Future scenario with the largest proposed event. Upon the addition of project and event-generated traffic to the anticipated Future volumes, the stop-controlled approaches of SR 12-121/Los Carneros Avenue and SR 12-121/Cuttings Wharf Drive would be expected operate at LOS F during both peak hours. The intersection of SR 12-121/Old Sonoma Road would be expected to operate unacceptably at LOS F during the p.m. peak period and at LOS E during the weekend midday peak period. The Future plus Project plus 150-Person Event operating conditions are summarized in Table 12 with Future Conditions (without the project or an event) shown for comparison.

Table 12 – Future and Future plus Project plus 150-Person Event Peak Hour Intersection Levels of Service

	Study Intersection ***Approach***	**Future Conditions**				**Future plus Project plus 150-Person Event**			
		Weekday PM Peak		**Weekend MD Peak**		**Weekday PM Peak**		**Weekend MD Peak**	
		Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1.	SR 12-121/Old Sonoma Road	**82.4**	**E**	**57.4**	**E**	**83.4**	**F**	**59.1**	**E**
2.	SR 12-121/Los Carneros Avenue	9.4	A	3.3	A	31.3	D	12.4	B
	NB (Los Carneros Ave) Approach	**	***F***	***77.4***	***F***	**	***F***	**	***F***
	SB (Los Carneros Ave) Approach	**	***F***	**	***F***	**	***F***	**	***F***
3.	SR 12-121/Cuttings Wharf Road	6.6	A	6.0	A	6.8	A	6.3	A
	NB (Cuttings Wharf Rd) Approach	***108.5***	***F***	**	***F***	***113.1***	***F***	**	***F***

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

Finding – All three study intersections continue to operate unacceptably during one or both peak hours with the addition of 150-person event volumes. The project and 150-person event volumes account for more than five percent of the difference between future and existing volumes at all three study intersections during both the weekday p.m. peak hour and weekend midday peak hour. This would be considered a significant impact under County thresholds.

Recommendation – The proposed new 150-person event should not begin or end during the weekday p.m. or weekend midday peak hours.

Future plus 90-Person Event Conditions

The study intersections were evaluated under event-only volumes with the tasting room closed to determine the largest event that could occur without resulting in a significant impact during the peak hours. Upon the addition of 90-person event-generated traffic to the anticipated Future volumes, the stop-controlled approaches of SR 12-121/Los Carneros Avenue and SR 12-121/Cuttings Wharf Drive would be expected to continue operating at LOS F during both peak hours. The intersection of SR 12-121/Old Sonoma Road would be expected to continue operating unacceptably at LOS F during the p.m. peak period and at LOS E during the weekend midday peak period. The Future plus 90-Person Event operating conditions are summarized in Table 13.

Table 13 – Future and Future plus 90-Person Event Peak Hour Intersection Levels of Service

	Study Intersection *Approach*	Future Conditions				Future plus 90-Person Event			
		Weekday PM Peak		Weekend MD Peak		Weekday PM Peak		Weekend MD Peak	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	SR 12-121/Old Sonoma Road	**82.4**	**E**	**57.4**	**E**	**82.1**	**F**	**57.0**	**E**
2.	SR 12-121/Los Carneros Avenue	9.4	A	3.3	A	10.5	B	3.8	A
	NB (Los Carneros Ave) Approach	**	***F***	***77.4***	***F***	**	***F***	***81.5***	***F***
	SB (Los Carneros Ave) Approach	**	***F***	**	***F***	**	***F***	**	***F***
3.	SR 12-121/Cuttings Wharf Road	6.6	A	6.0	A	6.5	A	6.0	A
	NB (Cuttings Wharf Rd) Approach	***108.5***	***F***	**	***F***	***107.5***	***F***	**	***F***

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

Finding – With the tasting room closed, during a 90-person event all three study intersections would be expected to continue operating unacceptably during one or both peak hours.

- The intersection of SR 12-121/Old Sonoma Road would operate unacceptably at LOS F and E during the weekday p.m. peak hour and weekend midday peak hours, respectively, without and with 90-Person Event-generated trips added. The event's impact would be significant if it contributes five percent or more of the increase in traffic over existing volumes; this event would add 4.1 percent of the difference between future and existing volumes at SR 12-121/Old Sonoma Road during the weekday p.m. peak hour and 4.3 percent of the difference during the weekend midday peak hour. This would therefore be a less-than-significant impact.

- The study intersection of SR 12-121/Los Carneros Avenue would continue to experience unacceptable operation of LOS F on the minor street approaches during both peak hours without and with event-related traffic. The County applies the same five percent threshold of significance to unsignalized intersections. The project volumes represent 9.9 and 10.1 percent of the increase during the weekday and weekend peak hours, exceeding the five percent threshold between future and existing volumes at the intersection. This could potentially be considered a significant impact under the County's standards. However, further analysis indicates that a traffic signal would not be warranted under Future plus 90-person event volumes during either peak hour, as shown on the warrant spreadsheets in Appendix E. Because a signal is not warranted, and this is the most feasible measure to achieve acceptable operation, under its policies the County may therefore consider the impact less-than-significant.

- Though delays would also increase at SR 12-121/Cuttings Wharf Drive, the project adds 4.7 percent of the difference between future and existing volumes at the intersection during the weekday evening peak hour and 4.9 percent during the weekend midday peak hour, which are less than the five percent County threshold. Therefore, the impact at this location is less-than-significant.

Alternative Modes

Pedestrian Facilities

Given the rural nature of the project site, there are no existing pedestrian facilities, except for shoulders in both directions along SR 12-121.

Finding – While there are no pedestrian facilities serving the project site, but none are expected to be needed.

Bicycle Facilities

Existing bicycle facilities, including bike lanes on Cuttings Wharf Road and SR 12-121, together with planned future facilities and the shared use of minor streets provide adequate access for bicyclists.

Bicycle Storage

The County does not have specific bicycle parking requirements for wineries; however, the project should provide bicycle parking consistent with the requirements for the specific uses outlined in Chapter 18.110.040 of the Napa County Code of Ordinances which states that ten bicycle parking spaces should be provided where more than ten automobile parking spaces are required. Hyde Winery has an existing supply of 12 permanent vehicle parking spaces, which will be increased to 35 permanent parking spaces to accommodate increased visitation under its Use Permit modification; therefore, the project should provide ten bicycle spaces.

Recommendation – The applicant should ensure parking for ten bicycles is provided.

Transit

There are no transit facilities serving the site; however, there is limited potential demand for transit, so this is considered an acceptable condition.

Finding – While there are no transit facilities serving the project site, there is also no anticipated demand for such service.

Access and Circulation

Site Access

The project site is accessed via the existing driveway on Los Carneros Avenue.

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 along Los Carneros Avenue at the project driveway was evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distance for minor street approaches that are either a private road or a driveway is based on stopping sight distance for the approach travel speeds. 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 the stopping sight distance criterion and the approach speed on the major street.

Sight distance along Los Carneros Avenue from the edge of traveled way in both directions from the driveway is clear for more than 550 feet, which exceeds the minimum sight distance required for vehicles traveling at 55 mph. Similarly, drivers on Los Carneros Avenue will have visibility of a vehicle stopped to turn left into the driveway for more than 550 feet.

Finding – Stopping sight distance at the project driveway is adequate to meet the applied criteria for both entering and exiting movements.

Recommendation – Because landscaping and signs can impede clear sight lines, any new plantings or signs should be designed to ensure that adequate sight lines will be maintained.

Access Analysis

Left-Turn Lane Warrants

The County of Napa has a published policy that provides guidance on when a turn lane is needed based on the daily traffic volume projected to use the driveway as a function of roadway ADT (Average Daily Traffic). A left-turn lane meets warrants when the corresponding value plots above the curve indicated on the Left Turn Lane Warrant Graph from the *Napa County Road and Street Standards*, and is unwarranted if the value plots below the curve.

Based on worst-case Future plus Project volumes during the weekday peak hour, a left-turn lane would not be warranted with the proposed Use Permit Modification. A copy of the warrant graph is provided in Appendix E.

Finding – A left-turn lane is not warranted on Los Carneros Road at the project driveway.

Conclusions and Recommendations

Conclusions

- The proposed change in visitation and employees at the winery would be expected to result in an average of 94 new daily trips on weekdays, including 36 trips during the weekday p.m. peak hour, and 88 new trips on a Saturday, including 50 trips during the peak hour. After taking pass-by trips into account, the project would have 28 net-new weekday p.m. peak hour trips and 35 net-new weekend peak hour trips.

- A total of ten special events annually are proposed as part of the project, including eight events for 55 guests and two events for 150 guests. A maximum-sized 150-person event would require a staff of ten in addition to any winery staff that would also assist with the event.

- The study intersection of SR 12-121/Old Sonoma Road is currently operating unacceptably during the weekday p.m. peak hour and would experience further increases in delay due to the addition of project-generated traffic. Under future conditions, the intersection would be expected to operate unacceptably during both peak periods. However, because the project generates less than one percent of existing volumes (0.69 percent) and less than five percent of the anticipated future increase in volumes (4.9 percent), the impact is considered less-than-significant under the County's criteria.

- SR 12-121/Los Carneros Avenue is currently operating unacceptably at LOS F on the minor street approaches during both peak periods. The project adds more than ten percent of the volumes on the stop-controlled northbound approach for existing conditions and more than five percent of the total volumes at the intersection for future conditions, which are considered potentially significant impacts. However, because warrants for signalization are not met under either current or future volumes, the County may deem the impact less-than-significant under the County's policies.

- The intersection of SR 12-121/Cuttings Wharf Road is currently operating at LOS E or F during the two peak hours evaluated and would be expected to operate with higher delays during both peak hours in the future and with project traffic added. However, because the project adds no traffic to the stop-controlled approach and adds less than five percent of the difference between future and existing volumes to the overall volumes at the intersection, its impact is considered less-than-significant.

- The largest marketing event that would not cause significant impacts per County standards would include 90-persons and would require the winery tasting room to be closed.

- Stopping sight distance at the project driveway is adequate to meet the applied criteria for both entering and exiting movements.

- A left-turn lane is not warranted on Los Carneros Avenue at the project driveway.

Recommendations

- Because landscaping and signs can impede clear sight lines, any new plantings or signs should be designed to ensure that adequate sight lines will be maintained.

- Secure parking facilities for at least ten bicycles should be provided on-site.

- The applicant should ensure that marketing events of more than 30 visitors will not begin nor end during the weekday or weekend peak hours when the tasting room is open.

Study Participants and References

Study Participants

Principal in Charge	Dalene J. Whitlock, PE, PTOE
Assistant Engineer	Kevin Rangel, EIT
Assistant Planner	Julia Walker
Graphics/Editing/Formatting	Alex Scrobonia

References

2014 Collision Data on California State Highways, California Department of Transportation, 2017
Guidelines for Interpretation of General Plan Circulation Policies on Significance Criteria, Fehr & Peers, 2015
Highway Capacity Manual, Transportation Research Board, 2010
Highway Design Manual, 6th Edition, California Department of Transportation, 2017
Napa County Bicycle Plan, W-Trans, 2012
Napa County Code, Municipal Code Corporation, 2017
Napa County General Plan, County of Napa, 2013
Napa County Road and Street Standards, County of Napa, 2016
Napa County Travel Behavior Study, Fehr and Peers, 2014
Statewide Integrated Traffic Records System (SWITRS), California Highway Patrol, 2012-2017
Trip Generation Manual, 10th Edition, Institute of Transportation Engineers, 2017

NAX109

Appendix A

Collision Rate Calculations

Intersection Collision Rate Calculations

Hyde Winery TIS

Intersection # 1: SR 12-121 & Old Sonoma Road

Date of Count: Thursday, April 05, 2018

Number of Collisions: 24
Number of Injuries: 12
Number of Fatalities: 0
ADT: 26300
Start Date: January 1, 2013
End Date: December 31, 2017
Number of Years: 5

Intersection Type: Tee
Control Type: Signals
Area: Rural

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

$$\text{collision rate} = \frac{24 \times 1{,}000{,}000}{26{,}300 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.50 c/mve**	**0.0%**	**50.0%**
Statewide Average*	**0.24 c/mve**	**0.6%**	**40.7%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2013 Collision Data on California State Highways, Caltrans

Intersection # 2: SR 12-121 & Los Carneros Avenue

Date of Count: Thursday, April 05, 2018

Number of Collisions: 6
Number of Injuries: 3
Number of Fatalities: 0
ADT: 21000
Start Date: January 1, 2013
End Date: December 31, 2017
Number of Years: 5

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

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

$$\text{collision rate} = \frac{6 \times 1{,}000{,}000}{21{,}000 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.16 c/mve**	**0.0%**	**50.0%**
Statewide Average*	**0.23 c/mve**	**2.0%**	**40.4%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2013 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

Hyde Winery TIS

Intersection # 3: SR 12-121 & Cuttings Wharf Road

Date of Count: Thursday, April 05, 2018

Number of Collisions: 7
Number of Injuries: 2
Number of Fatalities: 0
ADT: 22800
Start Date: January 1, 2013
End Date: December 31, 2017
Number of Years: 5

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

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

$$\text{collision rate} = \frac{7 \times 1{,}000{,}000}{22{,}800 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.17 c/mve**	**0.0%**	**28.6%**
Statewide Average*	**0.16 c/mve**	**1.7%**	**39.2%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2013 Collision Data on California State Highways, Caltrans

Appendix B

Intersection Turning Movement Counts

Prepared by National Data & Surveying Services

Old Sonoma Rd & SR 12/SR121

Peak Hour Turning Movement Count

ID: 18-08113-003
City: Napa

Day: Thursday
Date: 04/05/2018

PEAK HOURS		COUNT PERIODS
AM	NONE	AM
NOON	NONE	NOON
PM	04:45 PM - 05:45 PM	PM

					Old Sonoma Rd						
					SOUTHBOUND						
AM	0	0	0	0	0	AM	NONE				
NOON	0	0	0	0	0	NOON	NONE				
PM	342	0	47	0	305	PM	04:00 PM - 06:00 PM				

SR 12/SR121	EASTBOUND								WESTBOUND				SR 12/SR121
	AM	NOON	PM						PM	NOON	AM		
	0	0	1270	⇦	0	0	0	0	16	0	0	0	
	0	0	0	↶	0	0	0	0	928	0	0	0	
	0	0	289	↱	0	0	0	0	0	0	0	0	
	0	0	1008	→	0	0	0	0	0	0	0	⇨	
	0	0	0	↴	0	0	0	0	1055	0	0		
	AM	NOON	PM						PM	NOON	AM		

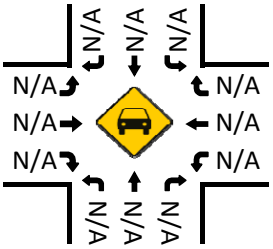
CONTROL

0

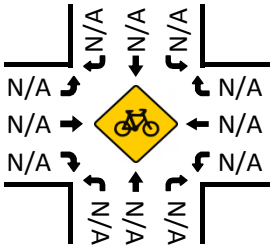
TEV	0 AM	0 NOON	2630 PM
PHF			0.97

					NORTHBOUND						
					Old Sonoma Rd						
PM	0	0	0	0	0	PM					
NOON	0	0	0	0	0	NOON					
AM	0	0	0	0	0	AM					

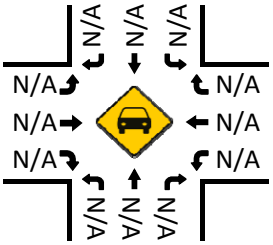
Total Vehicles (AM)



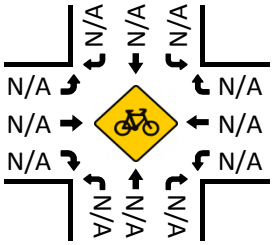
Bikes (AM)



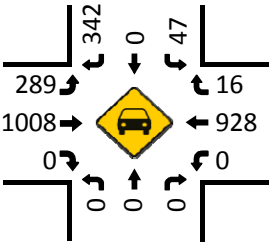
Total Vehicles (Noon)



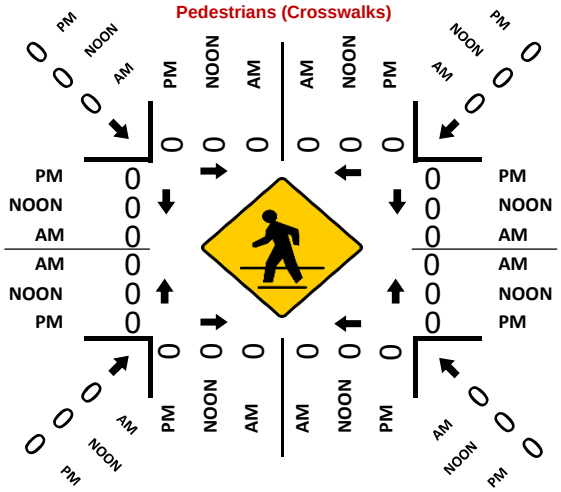
Bikes (NOON)



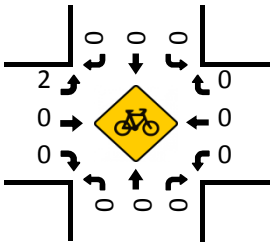
Total Vehicles (PM)



Pedestrians (Crosswalks)



Bikes (PM)



Prepared by National Data & Surveying Services

Los Carneros Ave & SR 12/SR121

Peak Hour Turning Movement Count

ID: 18-08113-001
City: Napa

Day: Thursday
Date: 04/05/2018

PEAK HOURS	
AM	NONE
NOON	NONE
PM	04:00 PM - 05:00 PM

COUNT PERIODS	
AM	NONE
NOON	NONE
PM	04:00 PM - 06:00 PM

Los Carneros Ave — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	3	1	8	0	23	PM

SR 12/SR121 — EASTBOUND

AM	NOON	PM	
0	0	0	
0	0	4	
0	0	1035	
0	0	8	
0	0	972	

SR 12/SR121 — WESTBOUND

PM	NOON	AM	
19	0	0	
961	0	0	
24	0	0	
0	0	0	
1073	0	0	

CONTROL

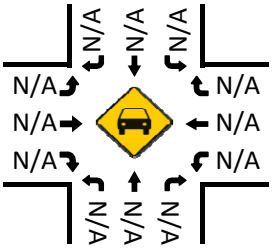
0

TEV	0 AM	0 NOON	2101 PM
PHF			0.95

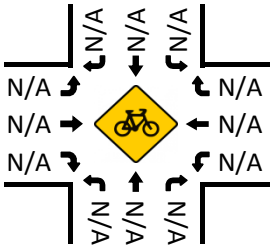
Los Carneros Ave — NORTHBOUND

PM	33	0	8	0	30	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

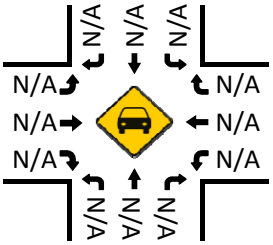
Total Vehicles (AM)



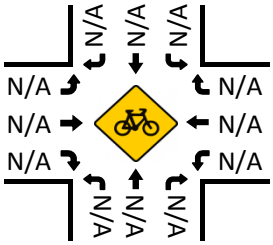
Bikes (AM)



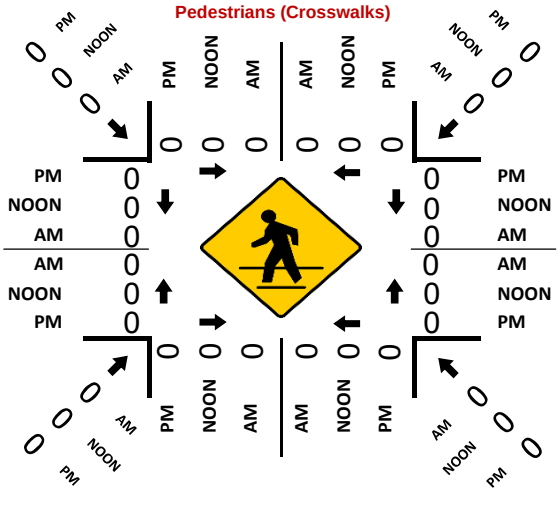
Total Vehicles (Noon)



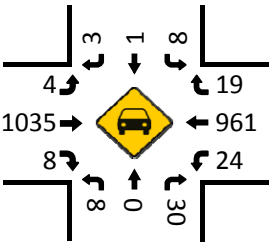
Bikes (NOON)



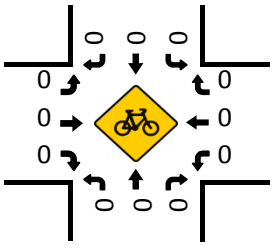
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Cuttings Wharf Rd & SR 12/SR121

Peak Hour Turning Movement Count

ID: 18-08113-002
City: Napa

Day: Thursday
Date: 04/05/2018

PEAK HOURS	COUNT PERIODS
NONE	NONE
NONE	NONE
04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

Cuttings Wharf Rd — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

SR 12/SR121 — EASTBOUND

AM	NOON	PM	
0	0	1026	⇦
0	0	0	↰ 0
0	0	0	↱ 0
0	0	1041	→ 0
0	0	11	↴ 0
AM	NOON	PM	

SR 12/SR121 — WESTBOUND

PM	NOON	AM	
0	0	0	↰ 0
1021	0	0	← 0
73	0	0	↲ 0
2	0	0	↱ 0
1168	0	0	⇨
PM	NOON	AM	

CONTROL

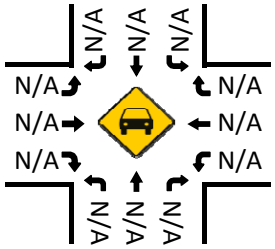
0

TEV	0 AM	0 NOON	2278 PM
PHF			0.94

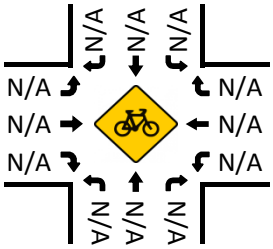
Cuttings Wharf Rd — NORTHBOUND

PM	84	0	5	0	125	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

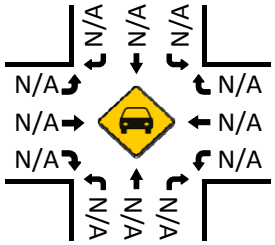
Total Vehicles (AM)



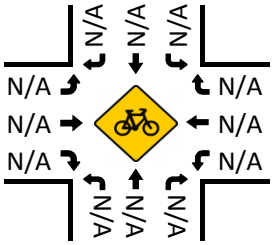
Bikes (AM)



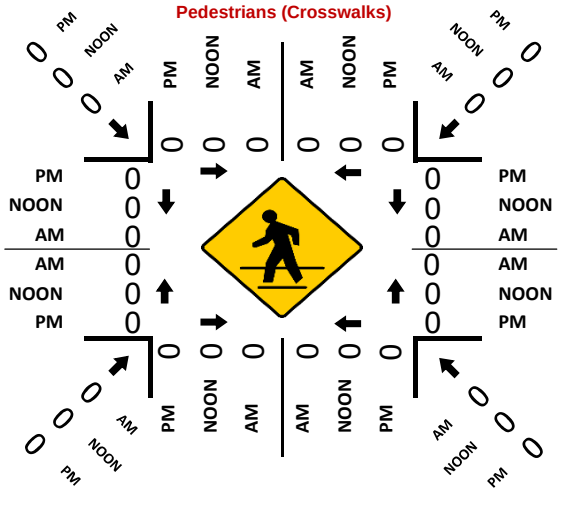
Total Vehicles (Noon)



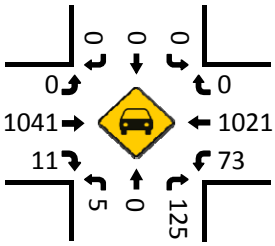
Bikes (NOON)



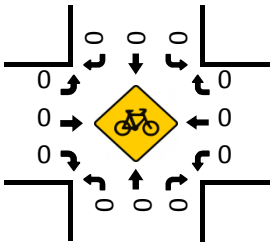
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Old Sonoma Rd & SR 12/SR121

Peak Hour Turning Movement Count

ID: 18-08113-003
City: Napa

Day: Saturday
Date: 04/14/2018

PEAK HOURS	COUNT PERIODS
NONE	NONE
NONE	NONE
03:00 PM - 04:00 PM	03:00 PM - 05:00 PM

Old Sonoma Rd — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	248	0	69	0	248	PM

SR 12/SR121 — EASTBOUND

AM	NOON	PM	
0	0	1165	⇦
0	0	0	↰ 0
0	0	230	↱ 0
0	0	1114	→ 0
0	0	0	↴ 0
AM	NOON	PM	

SR 12/SR121 — WESTBOUND

PM	NOON	AM	
18	0	0	0 ↱
917	0	0	0 ←
0	0	0	0 ↰
0	0	0	0 ↴
1183	0	0	⇨
PM	NOON	AM	

CONTROL

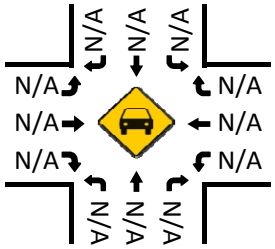
0

TEV	0 AM	0 NOON	2596 PM
PHF			0.98

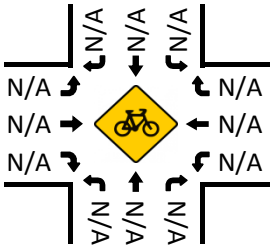
Old Sonoma Rd — NORTHBOUND

PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

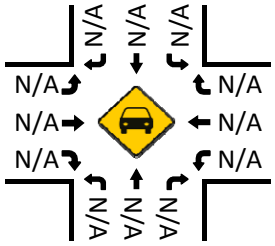
Total Vehicles (AM)



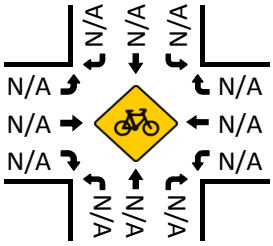
Bikes (AM)



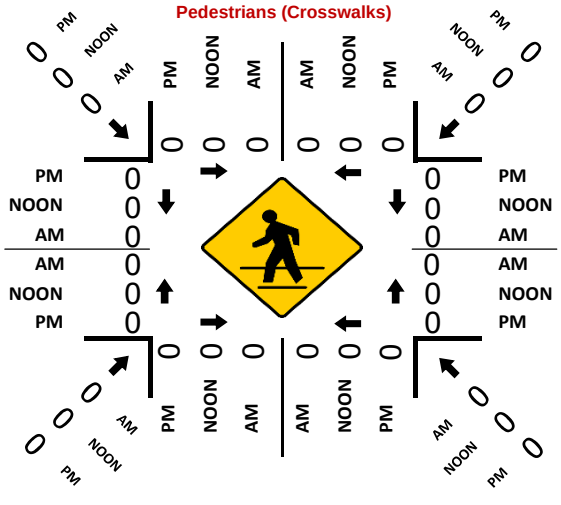
Total Vehicles (Noon)



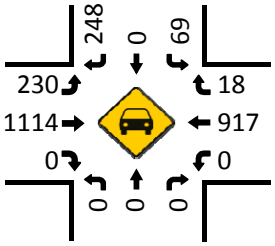
Bikes (NOON)



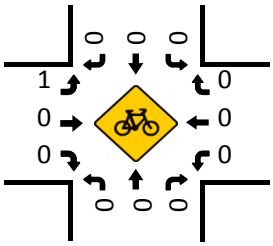
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Los Carneros Ave & SR 12/SR121

Peak Hour Turning Movement Count

ID: 18-08113-001
City: Napa

Day: Saturday
Date: 04/14/2018

PEAK HOURS		COUNT PERIODS
AM	NONE	AM
NOON	NONE	NOON
PM	03:45 PM - 04:45 PM	PM

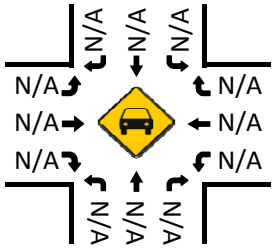
					Los Carneros Ave						
					SOUTHBOUND						
				AM	0	0	0	0	0	AM					
				NOON	0	0	0	0	0	NOON					
				PM	14	0	10	0	18	PM					
					0	0	0	0							
AM	NOON	PM											PM	NOON	AM
0	0	1016	⇦									0	13	0	0
0	0	0	↰	0								0	999	0	0
0	0	4	↱	0								0	16	0	0
0	0	1156	→	0								0	1	0	0
0	0	13	↴	0								⇨	1180	0	0
AM	NOON	PM											PM	NOON	AM
			⇩		0	0	0	0							
				PM	29	0	3	1	13	PM					
				NOON	0	0	0	0	0	NOON					
				AM	0	0	0	0	0	AM					
					NORTHBOUND										
					Los Carneros Ave										

CONTROL			
0			
TEV	0 AM	0 NOON	2243 PM
PHF			0.98

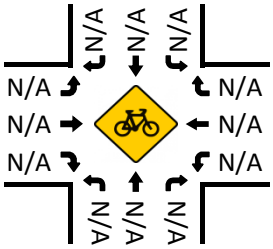
SR 12/SR121 (EASTBOUND)

SR 12/SR121 (WESTBOUND)

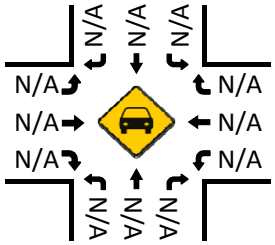
Total Vehicles (AM)



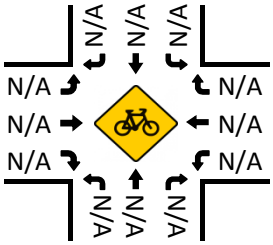
Bikes (AM)



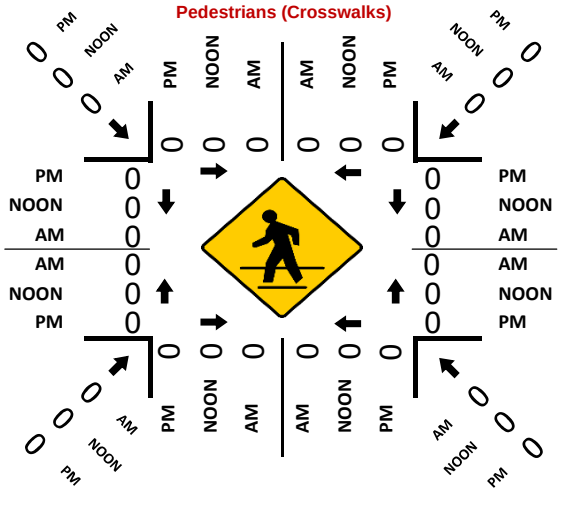
Total Vehicles (Noon)



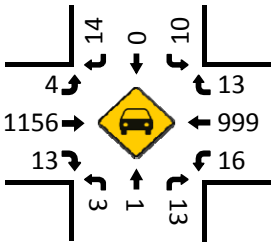
Bikes (NOON)



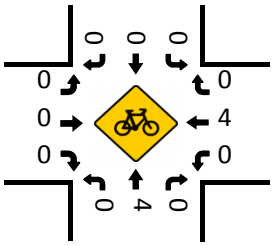
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Cuttings Wharf Rd & SR 12/SR121

Peak Hour Turning Movement Count

ID: 18-08113-002
City: Napa

Day: Saturday
Date: 04/14/2018

PEAK HOURS		COUNT PERIODS
AM	NONE	NONE
NOON	NONE	NONE
PM	03:45 PM - 04:45 PM	03:00 PM - 05:00 PM

Cuttings Wharf Rd — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

SR 12/SR121 — EASTBOUND

AM	NOON	PM	
0	0	1024	⇦
0	0	0	↰ 0
0	0	0	↱ 0
0	0	1158	→ 0
0	0	28	↴ 0
AM	NOON	PM	

SR 12/SR121 — WESTBOUND

PM	NOON	AM	
0	0	0	↰ 0
1006	0	0	← 0
68	0	0	↰ 0
0	0	0	↰ 0
1236	0	0	⇨
PM	NOON	AM	

CONTROL

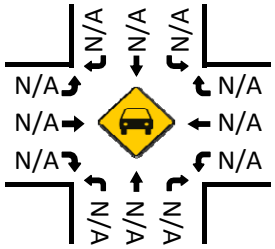
0

TEV	0 AM	0 NOON	2356 PM
PHF			0.97

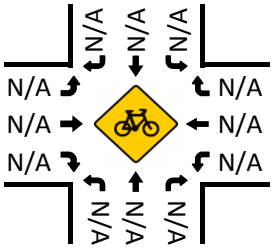
Cuttings Wharf Rd — NORTHBOUND

PM	96	0	18	0	78	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

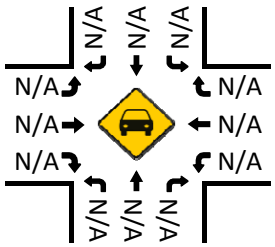
Total Vehicles (AM)



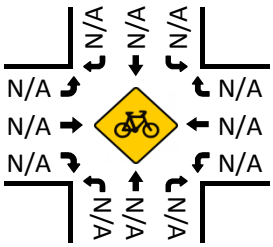
Bikes (AM)



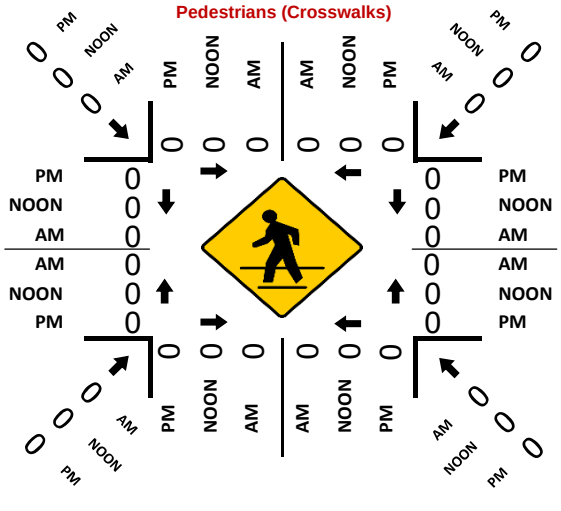
Total Vehicles (Noon)



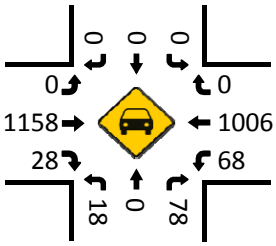
Bikes (NOON)



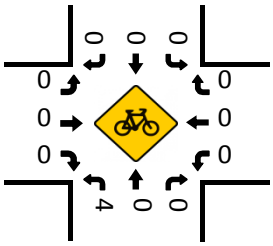
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Appendix C

Intersection Level of Service Calculations

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	58.7
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.920

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	47	342	289	1008	928	16
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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]	51	370	313	1092	1005	17
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	95	81	281	259	4
Total Analysis Volume [veh/h]	53	381	323	1126	1036	18
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	
Bicycle Volume [bicycles/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	90	110	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	19	19	29	101	72	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
PM Existing
W-Trans
5/15/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	158	158	158	158	158	158
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	24	58	29	123	89	89
g / C, Green / Cycle	0.15	0.36	0.18	0.78	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.03	0.24	0.18	0.60	0.56	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	269	577	325	1449	1052	894
d1, Uniform Delay [s]	58.72	42.10	64.57	9.89	33.78	15.16
k, delay calibration	0.04	0.50	0.43	0.50	0.29	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.13	5.84	44.77	4.16	17.73	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.20	0.66	0.99	0.78	0.98	0.02
d, Delay for Lane Group [s/veh]	62.36	52.74	198.44	14.36	66.11	15.17
Lane Group LOS	E	D	F	B	E	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.83	12.94	16.64	18.07	40.47	0.28
50th-Percentile Queue Length [ft/ln]	45.72	323.57	415.99	451.64	1011.70	6.90
95th-Percentile Queue Length [veh/ln]	3.29	18.84	23.33	25.04	50.90	0.50
95th-Percentile Queue Length [ft/ln]	82.29	471.07	583.24	625.90	1272.52	12.42

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	62.36	52.74	198.44	14.36	66.11	15.17
Movement LOS	E	D	F	B	E	B
d_A, Approach Delay [s/veh]	53.91		55.39		65.24	
Approach LOS	D		E		E	
d_I, Intersection Delay [s/veh]	58.71					
Intersection LOS	E					
Intersection V/C	0.920					

Sequence

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

Intersection Level Of Service Report
Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	252.6
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.446

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	8	0	30	8	1	8	4	1035	8	24	961	19
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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]	9	0	32	9	1	9	4	1121	9	26	1041	21
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
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]	2	0	8	2	0	2	1	295	2	7	274	6
Total Analysis Volume [veh/h]	9	0	34	9	1	9	4	1180	9	27	1096	22
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes	Yes		
Storage Area [veh]	1	1	0	0
Two-Stage Gap Acceptance	No	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	0.15	0.45	0.03	0.03	0.01	0.01	0.00	0.05	0.01	0.00
d_M, Delay for Movement [s/veh]	194.26	141.85	50.03	252.61	179.57	88.13	10.80	0.00	0.00	11.43	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	1.96	1.96	1.96	1.71	1.71	1.71	0.02	0.00	0.00	0.14	0.00	0.00
95th-Percentile Queue Length [ft/ln]	48.96	48.96	48.96	42.77	42.77	42.77	0.48	0.00	0.00	3.61	0.00	0.00
d_A, Approach Delay [s/veh]	80.22			170.85			0.04			0.27		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	2.94											
Intersection LOS	F											

Hyde Winery TIS
PM Existing
W-Trans
5/15/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	181.3
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.199

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	5	125	1041	11	75	1021
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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]	5	135	1127	12	81	1106
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	36	300	3	22	294
Total Analysis Volume [veh/h]	5	144	1199	13	86	1177
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	0.20	0.64	0.01	0.00	0.15	0.01
d_M, Delay for Movement [s/veh]	181.28	45.33	0.00	0.00	12.35	0.00
Movement LOS	F	E	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.60	3.84	0.00	0.00	0.52	0.00
95th-Percentile Queue Length [ft/ln]	15.06	95.95	0.00	0.00	13.06	0.00
d_A, Approach Delay [s/veh]	49.89		0.00		0.84	
Approach LOS	E		A		A	
d_I, Intersection Delay [s/veh]	3.24					
Intersection LOS	F					

Hyde Winery TIS
PM Existing
W-Trans
5/15/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	34.8
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.766

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	69	248	230	1114	917	18
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]	69	248	230	1114	917	18
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	63	59	284	234	5
Total Analysis Volume [veh/h]	70	253	235	1137	936	18
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	
Bicycle Volume [bicycles/h]	0		1		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	75	85	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	14	14	21	86	65	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
MD Existing
W-Trans
5/15/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	91	91	91	91	91	91
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	13	33	14	67	47	47
g / C, Green / Cycle	0.15	0.36	0.16	0.73	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.04	0.16	0.13	0.61	0.50	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	262	567	282	1359	968	822
d1, Uniform Delay [s]	34.52	22.40	37.24	8.57	21.19	10.66
k, delay calibration	0.04	0.08	0.11	0.22	0.05	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.20	0.42	6.42	2.93	4.39	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.27	0.45	0.83	0.84	0.97	0.02
d, Delay for Lane Group [s/veh]	38.22	27.62	132.76	11.80	40.17	10.67
Lane Group LOS	D	C	F	B	D	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.29	3.75	5.18	9.37	16.52	0.15
50th-Percentile Queue Length [ft/ln]	32.37	93.82	129.62	234.13	412.92	3.73
95th-Percentile Queue Length [veh/ln]	2.33	6.75	8.92	14.38	23.18	0.27
95th-Percentile Queue Length [ft/ln]	58.26	168.87	222.98	359.60	579.55	6.72

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.22	27.62	132.76	11.80	40.17	10.67
Movement LOS	D	C	F	B	D	B
d_A, Approach Delay [s/veh]	29.92		32.52		39.62	
Approach LOS	C		C		D	
d_I, Intersection Delay [s/veh]	34.76					
Intersection LOS	C					
Intersection V/C	0.766					

Sequence

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

Generated with PTV VISTRO

Version 5.00-05

Intersection Level Of Service Report

Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	176.8
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.378

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	3	1	13	10	0	14	4	1156	13	17	999	13
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]	3	1	13	10	0	14	4	1156	13	17	999	13
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
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]	1	0	3	3	0	4	1	295	3	4	255	3
Total Analysis Volume [veh/h]	3	1	13	10	0	14	4	1180	13	17	1019	13
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO

Version 5.00-05

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes	Yes		
Storage Area [veh]	1	1	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.03	0.06	0.38	0.00	0.05	0.01	0.01	0.00	0.03	0.01	0.00
d_M, Delay for Movement [s/veh]	141.99	99.64	24.98	176.78	130.79	53.11	10.38	0.00	0.00	11.34	0.00	0.00
Movement LOS	F	F	C	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.45	0.45	0.45	1.50	1.50	1.50	0.02	0.00	0.00	0.09	0.00	0.00
95th-Percentile Queue Length [ft/ln]	11.37	11.37	11.37	37.61	37.61	37.61	0.45	0.00	0.00	2.24	0.00	0.00
d_A, Approach Delay [s/veh]	50.02			104.64			0.03			0.18		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	1.57											
Intersection LOS	F											

Hyde Winery TIS W-Trans
MD Existing 5/15/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	206.1
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.565

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	18	78	1158	28	68	1006
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]	18	78	1158	28	68	1006
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	20	298	7	18	259
Total Analysis Volume [veh/h]	19	80	1194	29	70	1037
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	0.57	0.35	0.01	0.00	0.12	0.01
d_M, Delay for Movement [s/veh]	206.07	29.19	0.00	0.00	12.20	0.00
Movement LOS	F	D	A	A	B	A
95th-Percentile Queue Length [veh/ln]	1.91	1.51	0.00	0.00	0.42	0.00
95th-Percentile Queue Length [ft/ln]	47.69	37.64	0.00	0.00	10.43	0.00
d_A, Approach Delay [s/veh]	63.13		0.00		0.77	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	2.92					
Intersection LOS	F					

Hyde Winery TIS
MD Existing
W-Trans
5/15/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	59.9
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.924

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	47	342	289	1008	928	16
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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]	2	5	4	23	8	1
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]	53	375	317	1115	1013	18
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	97	82	287	261	5
Total Analysis Volume [veh/h]	55	387	327	1149	1044	19
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	
Bicycle Volume [bicycles/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	90	110	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	19	19	29	101	72	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
PM Existing plus Approved
W-Trans
5/15/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	160	160	160	160	160	160
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	24	58	29	125	91	91
g / C, Green / Cycle	0.15	0.36	0.18	0.78	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.03	0.24	0.18	0.62	0.56	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	266	572	322	1453	1060	901
d1, Uniform Delay [s]	59.57	43.19	65.42	10.12	33.78	15.03
k, delay calibration	0.04	0.50	0.44	0.50	0.30	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.14	6.33	51.43	4.48	18.16	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.21	0.68	1.02	0.79	0.99	0.02
d, Delay for Lane Group [s/veh]	63.21	54.32	205.95	14.89	66.54	15.03
Lane Group LOS	E	D	F	B	E	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.92	13.48	17.31	19.07	41.25	0.29
50th-Percentile Queue Length [ft/ln]	48.10	336.99	432.71	476.75	1031.31	7.29
95th-Percentile Queue Length [veh/ln]	3.46	19.50	24.34	26.23	51.79	0.52
95th-Percentile Queue Length [ft/ln]	86.59	487.52	608.53	655.80	1294.65	13.12

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	63.21	54.32	205.95	14.89	66.54	15.03
Movement LOS	E	D	F	B	E	B
d_A, Approach Delay [s/veh]	55.43		57.22		65.62	
Approach LOS	E		E		E	
d_I, Intersection Delay [s/veh]	59.95					
Intersection LOS	E					
Intersection V/C	0.924					

Sequence

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

Hyde Winery TIS
PM Existing plus Approved
W-Trans
5/15/2018

Intersection Level Of Service Report
Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	275.0
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.476

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	8	0	30	8	1	8	4	1035	8	24	961	19
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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	25	0	0	9	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]	9	0	32	9	1	9	4	1146	9	26	1050	21
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
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]	2	0	8	2	0	2	1	302	2	7	276	6
Total Analysis Volume [veh/h]	9	0	34	9	1	9	4	1206	9	27	1105	22
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes	Yes		
Storage Area [veh]	1	1	0	0
Two-Stage Gap Acceptance	No	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	0.15	0.48	0.03	0.04	0.01	0.01	0.00	0.05	0.01	0.00
d_M, Delay for Movement [s/veh]	208.87	152.27	55.19	275.00	195.63	98.64	10.85	0.00	0.00	11.58	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	2.09	2.09	2.09	1.80	1.80	1.80	0.02	0.00	0.00	0.15	0.00	0.00
95th-Percentile Queue Length [ft/ln]	52.28	52.28	52.28	44.99	44.99	44.99	0.49	0.00	0.00	3.69	0.00	0.00
d_A, Approach Delay [s/veh]	87.35			187.28			0.04			0.27		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	3.15											
Intersection LOS	F											

Hyde Winery TIS
PM Existing plus Approved
W-Trans
5/15/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	196.3
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.213

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	5	125	1041	11	75	1021
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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	4	25	0	2	9
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]	5	139	1152	12	83	1115
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	37	306	3	22	297
Total Analysis Volume [veh/h]	5	148	1226	13	88	1186
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	0.21	0.68	0.01	0.00	0.16	0.01
d_M, Delay for Movement [s/veh]	196.25	50.70	0.00	0.00	12.59	0.00
Movement LOS	F	F	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.64	4.27	0.00	0.00	0.55	0.00
95th-Percentile Queue Length [ft/ln]	15.93	106.80	0.00	0.00	13.79	0.00
d_A, Approach Delay [s/veh]	55.46		0.00		0.87	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	3.60					
Intersection LOS	F					

Hyde Winery TIS
PM Existing plus Approved
W-Trans
5/15/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	36.9
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.779

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	69	248	230	1114	917	18
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]	3	7	4	13	14	1
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]	72	255	234	1127	931	19
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	65	60	288	238	5
Total Analysis Volume [veh/h]	73	260	239	1150	950	19
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	
Bicycle Volume [bicycles/h]	0		1		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	75	85	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	14	14	21	86	65	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
MD Existing plus Approved
W-Trans
5/15/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	97	97	97	97	97	97
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	14	35	15	71	51	51
g / C, Green / Cycle	0.15	0.36	0.16	0.73	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.04	0.16	0.13	0.62	0.51	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	266	567	283	1367	979	832
d1, Uniform Delay [s]	36.39	23.80	39.44	8.94	22.18	11.00
k, delay calibration	0.04	0.13	0.11	0.27	0.09	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.20	0.68	6.80	3.59	6.85	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.27	0.46	0.84	0.84	0.97	0.02
d, Delay for Lane Group [s/veh]	40.10	29.28	135.35	12.83	43.62	11.00
Lane Group LOS	D	C	F	B	D	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.44	4.21	5.65	10.73	18.73	0.17
50th-Percentile Queue Length [ft/ln]	36.10	105.22	141.23	268.26	468.18	4.21
95th-Percentile Queue Length [veh/ln]	2.60	7.57	9.55	16.10	25.82	0.30
95th-Percentile Queue Length [ft/ln]	64.98	189.33	238.68	402.56	645.60	7.57

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.10	29.28	135.35	12.83	43.62	11.00
Movement LOS	D	C	F	B	D	B
d_A, Approach Delay [s/veh]	31.65		33.91		42.98	
Approach LOS	C		C		D	
d_I, Intersection Delay [s/veh]	36.90					
Intersection LOS	D					
Intersection V/C	0.779					

Sequence

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

Hyde Winery TIS
MD Existing plus Approved
W-Trans
5/15/2018

Generated with PTV VISTRO

Version 5.00-05

Intersection Level Of Service Report

Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	189.3
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.400

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	3	1	13	10	0	14	4	1156	13	17	999	13
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	16	0	0	15	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]	3	1	13	10	0	14	4	1172	13	17	1014	13
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
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]	1	0	3	3	0	4	1	299	3	4	259	3
Total Analysis Volume [veh/h]	3	1	13	10	0	14	4	1196	13	17	1035	13
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO

Version 5.00-05

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes	Yes		
Storage Area [veh]	1	1	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.03	0.06	0.40	0.00	0.05	0.01	0.01	0.00	0.03	0.01	0.00
d_M, Delay for Movement [s/veh]	149.95	104.56	25.86	189.31	139.92	58.13	10.45	0.00	0.00	11.43	0.00	0.00
Movement LOS	F	F	D	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.48	0.48	0.48	1.59	1.59	1.59	0.02	0.00	0.00	0.09	0.00	0.00
95th-Percentile Queue Length [ft/ln]	12.05	12.05	12.05	39.66	39.66	39.66	0.45	0.00	0.00	2.27	0.00	0.00
d_A, Approach Delay [s/veh]	52.39			112.79			0.03			0.18		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	1.65											
Intersection LOS	F											

Hyde Winery TIS
MD Existing plus Approved
W-Trans
5/15/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	227.1
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.602

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	18	78	1158	28	68	1006
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	6	16	0	3	15
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]	18	84	1174	28	71	1021
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	22	303	7	18	263
Total Analysis Volume [veh/h]	19	87	1210	29	73	1053
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	0.60	0.39	0.01	0.00	0.13	0.01
d_M, Delay for Movement [s/veh]	227.07	31.20	0.00	0.00	12.36	0.00
Movement LOS	F	D	A	A	B	A
95th-Percentile Queue Length [veh/ln]	2.00	1.75	0.00	0.00	0.44	0.00
95th-Percentile Queue Length [ft/ln]	49.96	43.65	0.00	0.00	11.11	0.00
d_A, Approach Delay [s/veh]	66.31		0.00		0.80	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	3.21					
Intersection LOS	F					

Hyde Winery TIS
MD Existing plus Approved
W-Trans
5/15/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	82.4
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.002

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	47	342	289	1008	928	16
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.14	1.14	1.14	1.14	1.14	1.14
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]	58	422	357	1245	1146	19
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	109	92	321	295	5
Total Analysis Volume [veh/h]	60	435	368	1284	1181	20
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	
Bicycle Volume [bicycles/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	90	110	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	14	14	29	106	77	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
PM Future
W-Trans
6/12/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	179	179	179	179	179	179
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	24	58	29	144	110	110
g / C, Green / Cycle	0.13	0.32	0.16	0.80	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.03	0.27	0.21	0.69	0.63	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	238	511	288	1496	1145	973
d1, Uniform Delay [s]	69.31	56.49	74.86	11.16	34.45	13.45
k, delay calibration	0.04	0.50	0.50	0.50	0.49	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.20	16.19	149.34	6.61	34.85	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.25	0.85	1.28	0.86	1.03	0.02
d, Delay for Lane Group [s/veh]	73.02	77.49	313.30	18.07	83.90	13.45
Lane Group LOS	E	E	F	B	F	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.43	20.07	24.86	26.54	55.97	0.31
50th-Percentile Queue Length [ft/ln]	60.86	501.63	621.50	663.44	1399.17	7.68
95th-Percentile Queue Length [veh/ln]	4.38	27.41	36.97	34.99	70.22	0.55
95th-Percentile Queue Length [ft/ln]	109.54	685.29	924.28	874.65	1755.50	13.82

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	73.02	77.49	313.30	18.07	83.90	13.45
Movement LOS	E	E	F	B	F	B
d_A, Approach Delay [s/veh]	76.95		83.83		82.73	
Approach LOS	E		F		F	
d_I, Intersection Delay [s/veh]	82.42					
Intersection LOS	F					
Intersection V/C	1.002					

Sequence

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

Hyde Winery TIS
PM Future
W-Trans
6/12/2018

Intersection Level Of Service Report
Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	673.6
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.039

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	8	0	30	8	1	8	4	1035	8	24	961	19
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
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]	10	0	36	10	1	10	5	1278	10	30	1187	24
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
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]	3	0	9	3	0	3	1	336	3	8	312	6
Total Analysis Volume [veh/h]	11	0	38	11	1	11	5	1345	11	32	1249	25
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes	Yes		
Storage Area [veh]	1	1	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.90	0.00	0.21	1.04	0.05	0.05	0.01	0.01	0.00	0.06	0.01	0.00
d_M, Delay for Movement [s/veh]	489.10	376.20	215.47	673.63	510.12	350.75	11.67	0.00	0.00	12.57	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	4.35	4.35	4.35	3.10	3.10	3.10	0.03	0.00	0.00	0.20	0.00	0.00
95th-Percentile Queue Length [ft/ln]	108.86	108.86	108.86	77.56	77.56	77.56	0.69	0.00	0.00	5.03	0.00	0.00
d_A, Approach Delay [s/veh]	276.89			512.10			0.04			0.31		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	9.42											
Intersection LOS	F											

Hyde Winery TIS
PM Future
W-Trans
6/12/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	397.0
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.434

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	5	125	1041	11	75	1021
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.14	1.14	1.14	1.14	1.14	1.14
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]	6	154	1285	14	92	1261
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	41	342	4	24	335
Total Analysis Volume [veh/h]	6	164	1367	15	98	1341
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	0.43	0.91	0.01	0.00	0.20	0.01
d_M, Delay for Movement [s/veh]	396.97	97.96	0.00	0.00	14.04	0.00
Movement LOS	F	F	A	A	B	A
95th-Percentile Queue Length [veh/ln]	1.09	6.91	0.00	0.00	0.73	0.00
95th-Percentile Queue Length [ft/ln]	27.21	172.85	0.00	0.00	18.21	0.00
d_A, Approach Delay [s/veh]	108.51		0.00		0.96	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	6.63					
Intersection LOS	F					

Hyde Winery TIS
PM Future
W-Trans
6/12/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	57.4
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.873

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	69	248	230	1114	917	18
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	1.14	1.14	1.14	1.14	1.14	1.14
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]	79	283	262	1270	1045	21
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	72	67	324	267	5
Total Analysis Volume [veh/h]	81	289	267	1296	1066	21
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	
Bicycle Volume [bicycles/h]	0		1		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	170
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	75	85	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	16	16	35	154	119	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
MD Future
W-Trans
6/12/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	149	149	149	149	149	149
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	23	53	25	114	85	85
g / C, Green / Cycle	0.16	0.35	0.17	0.77	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.05	0.18	0.15	0.70	0.57	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	280	561	293	1429	1063	903
d1, Uniform Delay [s]	55.37	37.98	61.12	13.27	31.98	13.92
k, delay calibration	0.04	0.50	0.27	0.50	0.46	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.21	3.36	22.09	9.93	27.11	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.29	0.52	0.91	0.91	1.00	0.02
d, Delay for Lane Group [s/veh]	59.08	46.14	172.30	23.50	73.70	13.93
Lane Group LOS	E	D	F	C	F	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.63	8.55	11.39	27.87	42.03	0.29
50th-Percentile Queue Length [ft/ln]	65.83	213.69	284.81	696.70	1050.77	7.34
95th-Percentile Queue Length [veh/ln]	4.74	13.34	16.93	36.53	52.81	0.53
95th-Percentile Queue Length [ft/ln]	118.50	333.56	423.20	913.13	1320.20	13.21

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.08	46.14	172.30	23.50	73.70	13.93
Movement LOS	E	D	F	C	F	B
d_A, Approach Delay [s/veh]	48.97		48.92		72.54	
Approach LOS	D		D		E	
d_I, Intersection Delay [s/veh]	57.43					
Intersection LOS	E					
Intersection V/C	0.873					

Sequence

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

Intersection Level Of Service Report
Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	391.0
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.739

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	3	1	13	10	0	14	4	1156	13	17	999	13
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	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
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]	3	1	15	11	0	16	5	1318	15	19	1139	15
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
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]	1	0	4	3	0	4	1	336	4	5	291	4
Total Analysis Volume [veh/h]	3	1	15	11	0	16	5	1345	15	19	1162	15
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Stop		Stop		Free		Free	
Flared Lane	Yes		Yes					
Storage Area [veh]	1		1		0		0	
Two-Stage Gap Acceptance	No		No					
Number of Storage Spaces in Median	0		0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.04	0.08	0.74	0.00	0.07	0.01	0.01	0.00	0.04	0.01	0.00
d_M, Delay for Movement [s/veh]	248.89	163.55	37.34	391.04	294.87	164.41	11.12	0.00	0.00	12.40	0.00	0.00
Movement LOS	F	F	E	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.82	0.82	0.82	2.72	2.72	2.72	0.03	0.00	0.00	0.12	0.00	0.00
95th-Percentile Queue Length [ft/ln]	20.60	20.60	20.60	68.00	68.00	68.00	0.64	0.00	0.00	2.92	0.00	0.00
d_A, Approach Delay [s/veh]	77.39			256.74			0.04			0.20		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	3.33											
Intersection LOS	F											

Hyde Winery TIS
MD Future
W-Trans
6/12/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	521.9
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.122

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	18	78	1158	28	68	1006
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	1.14	1.14	1.14	1.14	1.14	1.14
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]	21	89	1320	32	78	1147
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	23	340	8	20	296
Total Analysis Volume [veh/h]	22	92	1361	33	80	1182
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	1.12	0.51	0.01	0.00	0.16	0.01
d_M, Delay for Movement [s/veh]	521.87	43.70	0.00	0.00	13.76	0.00
Movement LOS	F	E	A	A	B	A
95th-Percentile Queue Length [veh/ln]	3.03	2.52	0.00	0.00	0.58	0.00
95th-Percentile Queue Length [ft/ln]	75.65	63.02	0.00	0.00	14.45	0.00
d_A, Approach Delay [s/veh]	135.98		0.00		0.87	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	5.99					
Intersection LOS	F					

Hyde Winery TIS
MD Future
W-Trans
6/12/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	59.4
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.922

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	47	342	289	1008	928	16
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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	6	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	-4	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]	51	370	313	1098	1013	17
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	95	81	283	261	4
Total Analysis Volume [veh/h]	53	381	323	1132	1044	18
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	
Bicycle Volume [bicycles/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	90	110	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	19	19	29	101	72	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
PM Existing plus Project
W-Trans
6/8/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	160	160	160	160	160	160
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	24	58	29	125	91	91
g / C, Green / Cycle	0.15	0.36	0.18	0.78	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.03	0.24	0.18	0.61	0.56	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	266	572	322	1452	1060	901
d1, Uniform Delay [s]	59.49	42.97	65.41	9.88	33.78	15.02
k, delay calibration	0.04	0.50	0.44	0.50	0.30	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.13	6.05	47.72	4.20	18.16	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.20	0.67	1.00	0.78	0.99	0.02
d, Delay for Lane Group [s/veh]	63.13	53.82	202.24	14.38	66.55	15.02
Lane Group LOS	E	D	F	B	E	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.85	13.18	16.98	18.31	41.25	0.28
50th-Percentile Queue Length [ft/ln]	46.30	329.51	424.42	457.67	1031.35	6.90
95th-Percentile Queue Length [veh/ln]	3.33	19.13	23.78	25.32	51.79	0.50
95th-Percentile Queue Length [ft/ln]	83.33	478.35	594.51	633.09	1294.69	12.42

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	63.13	53.82	202.24	14.38	66.55	15.02
Movement LOS	E	D	F	B	E	B
d_A, Approach Delay [s/veh]	54.96		56.08		65.67	
Approach LOS	D		E		E	
d_I, Intersection Delay [s/veh]	59.37					
Intersection LOS	E					
Intersection V/C	0.922					

Sequence

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

Hyde Winery TIS
PM Existing plus Project
W-Trans
6/8/2018

Intersection Level Of Service Report
Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	377.1
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.996

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	8	0	30	8	1	8	4	1035	8	24	961	19
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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]	12	0	12	0	0	0	0	0	6	6	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	-4	0	0	-4	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]	21	0	44	9	1	9	4	1117	15	32	1037	21
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
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]	6	0	12	2	0	2	1	294	4	8	273	6
Total Analysis Volume [veh/h]	22	0	46	9	1	9	4	1176	16	34	1092	22
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Stop		Stop		Free		Free	
Flared Lane	Yes		Yes					
Storage Area [veh]	1		1		0		0	
Two-Stage Gap Acceptance	No		No					
Number of Storage Spaces in Median	0		0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.00	0.00	0.20	0.49	0.03	0.03	0.01	0.01	0.00	0.06	0.01	0.00
d_M, Delay for Movement [s/veh]	377.14	323.83	229.58	285.93	198.19	103.26	10.78	0.00	0.00	11.53	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	5.59	5.59	5.59	1.84	1.84	1.84	0.02	0.00	0.00	0.18	0.00	0.00
95th-Percentile Queue Length [ft/ln]	139.72	139.72	139.72	45.95	45.95	45.95	0.48	0.00	0.00	4.61	0.00	0.00
d_A, Approach Delay [s/veh]	277.32			194.78			0.04			0.34		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	9.46											
Intersection LOS	F											

Hyde Winery TIS
PM Existing plus Project
W-Trans
6/8/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	186.0
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.204

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	5	125	1041	11	75	1021
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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	12	0	0	6
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-4	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]	5	135	1135	12	81	1112
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	36	302	3	22	296
Total Analysis Volume [veh/h]	5	144	1207	13	86	1183
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	0.20	0.64	0.01	0.00	0.15	0.01
d_M, Delay for Movement [s/veh]	186.00	46.35	0.00	0.00	12.41	0.00
Movement LOS	F	E	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.61	3.90	0.00	0.00	0.53	0.00
95th-Percentile Queue Length [ft/ln]	15.34	97.60	0.00	0.00	13.17	0.00
d_A, Approach Delay [s/veh]	51.03		0.00		0.84	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	3.29					
Intersection LOS	F					

Hyde Winery TIS
PM Existing plus Project
W-Trans
6/8/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	35.2
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.769

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	69	248	230	1114	917	18
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	13	13	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	-8	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]	69	248	230	1127	922	18
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	63	59	288	235	5
Total Analysis Volume [veh/h]	70	253	235	1150	941	18
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	
Bicycle Volume [bicycles/h]	0		1		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	75	85	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	14	14	21	86	65	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
MD Existing plus Project
W-Trans
6/8/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	92	92	92	92	92	92
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	14	33	15	67	48	48
g / C, Green / Cycle	0.15	0.36	0.16	0.73	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.04	0.16	0.13	0.62	0.51	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	262	565	281	1362	972	826
d1, Uniform Delay [s]	34.89	22.71	37.66	8.72	21.32	10.67
k, delay calibration	0.04	0.09	0.11	0.24	0.06	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.20	0.45	6.51	3.28	4.95	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.27	0.45	0.84	0.84	0.97	0.02
d, Delay for Lane Group [s/veh]	38.59	27.96	133.27	12.30	40.87	10.67
Lane Group LOS	D	C	F	B	D	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.31	3.82	5.25	9.85	16.97	0.15
50th-Percentile Queue Length [ft/ln]	32.79	95.44	131.36	246.32	424.36	3.77
95th-Percentile Queue Length [veh/ln]	2.36	6.87	9.01	15.00	23.73	0.27
95th-Percentile Queue Length [ft/ln]	59.03	171.79	225.35	375.02	593.28	6.78

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.59	27.96	133.27	12.30	40.87	10.67
Movement LOS	D	C	F	B	D	B
d_A, Approach Delay [s/veh]	30.26		32.82		40.31	
Approach LOS	C		C		D	
d_I, Intersection Delay [s/veh]	35.21					
Intersection LOS	D					
Intersection V/C	0.769					

Sequence

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

Hyde Winery TIS
MD Existing plus Project
W-Trans
6/8/2018

Intersection Level Of Service Report
Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	221.2
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.607

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	3	1	13	10	0	14	4	1156	13	17	999	13
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]	13	0	12	0	0	0	0	0	13	12	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	-9	0	0	-8	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]	16	1	25	10	0	14	4	1147	26	29	991	13
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
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]	4	0	6	3	0	4	1	293	7	7	253	3
Total Analysis Volume [veh/h]	16	1	26	10	0	14	4	1170	27	30	1011	13
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Stop		Stop		Free		Free	
Flared Lane	Yes		Yes					
Storage Area [veh]	1		1		0		0	
Two-Stage Gap Acceptance	No		No					
Number of Storage Spaces in Median	0		0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.61	0.03	0.11	0.42	0.00	0.05	0.01	0.01	0.00	0.05	0.01	0.00
d_M, Delay for Movement [s/veh]	221.18	177.96	99.87	203.21	146.02	63.04	10.34	0.00	0.00	11.51	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	2.96	2.96	2.96	1.67	1.67	1.67	0.02	0.00	0.00	0.16	0.00	0.00
95th-Percentile Queue Length [ft/ln]	74.05	74.05	74.05	41.75	41.75	41.75	0.45	0.00	0.00	4.06	0.00	0.00
d_A, Approach Delay [s/veh]	146.82			121.45			0.03			0.33		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	4.14											
Intersection LOS	F											

Hyde Winery TIS
MD Existing plus Project
W-Trans
6/8/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	213.2
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.578

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	18	78	1158	28	68	1006
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	12	0	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-9	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]	18	78	1161	28	68	1018
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	20	299	7	18	262
Total Analysis Volume [veh/h]	19	80	1197	29	70	1049
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	0.58	0.35	0.01	0.00	0.12	0.01
d_M, Delay for Movement [s/veh]	213.19	29.33	0.00	0.00	12.22	0.00
Movement LOS	F	D	A	A	B	A
95th-Percentile Queue Length [veh/ln]	1.94	1.51	0.00	0.00	0.42	0.00
95th-Percentile Queue Length [ft/ln]	48.49	37.84	0.00	0.00	10.46	0.00
d_A, Approach Delay [s/veh]	64.62		0.00		0.76	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	2.97					
Intersection LOS	F					

Hyde Winery TIS
MD Existing plus Project
W-Trans
6/8/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	60.7
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.927

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	47	342	289	1008	928	16
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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]	2	5	4	29	20	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	-4	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]	53	375	317	1121	1021	18
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	97	82	289	263	5
Total Analysis Volume [veh/h]	55	387	327	1156	1053	19
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	
Bicycle Volume [bicycles/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	90	110	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	19	19	29	101	72	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
PM Existing plus Approved plus Project
W-Trans
6/8/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	162	162	162	162	162	162
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	24	58	29	126	93	93
g / C, Green / Cycle	0.15	0.36	0.18	0.78	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.03	0.24	0.18	0.62	0.57	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	264	565	318	1457	1068	908
d1, Uniform Delay [s]	60.45	44.20	66.29	10.11	33.79	14.87
k, delay calibration	0.04	0.50	0.45	0.50	0.31	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.14	6.60	55.12	4.53	18.64	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.21	0.68	1.03	0.79	0.99	0.02
d, Delay for Lane Group [s/veh]	64.09	55.60	210.51	14.93	67.03	14.87
Lane Group LOS	E	E	F	B	E	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.95	13.76	17.61	19.37	42.15	0.29
50th-Percentile Queue Length [ft/ln]	48.80	344.01	440.16	484.30	1053.83	7.29
95th-Percentile Queue Length [veh/ln]	3.51	19.84	24.84	26.59	52.80	0.52
95th-Percentile Queue Length [ft/ln]	87.84	496.10	621.10	664.76	1320.02	13.12

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.09	55.60	210.51	14.93	67.03	14.87
Movement LOS	E	E	F	B	E	B
d_A, Approach Delay [s/veh]	56.65		58.06		66.11	
Approach LOS	E		E		E	
d_I, Intersection Delay [s/veh]	60.73					
Intersection LOS	E					
Intersection V/C	0.927					

Sequence

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

Intersection Level Of Service Report
Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	416.1
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.059

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	8	0	30	8	1	8	4	1035	8	24	961	19
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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]	12	0	12	0	0	0	0	25	6	6	9	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	-4	0	0	-4	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]	21	0	44	9	1	9	4	1142	15	32	1046	21
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
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]	6	0	12	2	0	2	1	301	4	8	275	6
Total Analysis Volume [veh/h]	22	0	46	9	1	9	4	1202	16	34	1101	22
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes	Yes		
Storage Area [veh]	1	1	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.06	0.00	0.20	0.53	0.03	0.03	0.01	0.01	0.00	0.06	0.01	0.00
d_M, Delay for Movement [s/veh]	416.14	358.56	258.86	312.83	217.15	116.44	10.83	0.00	0.00	11.68	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	5.83	5.83	5.83	1.93	1.93	1.93	0.02	0.00	0.00	0.19	0.00	0.00
95th-Percentile Queue Length [ft/ln]	145.63	145.63	145.63	48.28	48.28	48.28	0.49	0.00	0.00	4.72	0.00	0.00
d_A, Approach Delay [s/veh]	309.75			214.77			0.04			0.34		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	10.37											
Intersection LOS	F											

Hyde Winery TIS
PM Existing plus Approved plus Project
W-Trans
6/8/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	201.8
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.218

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	5	125	1041	11	75	1021
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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	4	37	0	2	15
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-4	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]	5	139	1160	12	83	1121
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	37	309	3	22	298
Total Analysis Volume [veh/h]	5	148	1234	13	88	1193
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	0.22	0.69	0.01	0.00	0.16	0.01
d_M, Delay for Movement [s/veh]	201.80	51.92	0.00	0.00	12.65	0.00
Movement LOS	F	F	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.65	4.35	0.00	0.00	0.56	0.00
95th-Percentile Queue Length [ft/ln]	16.24	108.63	0.00	0.00	13.91	0.00
d_A, Approach Delay [s/veh]	56.82		0.00		0.87	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	3.66					
Intersection LOS	F					

Hyde Winery TIS
PM Existing plus Approved plus Project
W-Trans
6/8/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	37.5
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.783

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	69	248	230	1114	917	18
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]	3	7	5	26	27	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	-8	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]	72	255	235	1140	936	19
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	65	60	291	239	5
Total Analysis Volume [veh/h]	73	260	240	1163	955	19
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	
Bicycle Volume [bicycles/h]	0		1		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	75	85	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	14	14	21	86	65	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
MD Existing plus Approved plus Project
W-Trans
6/8/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	98	98	98	98	98	98
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	15	35	16	72	52	52
g / C, Green / Cycle	0.15	0.36	0.16	0.74	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.04	0.16	0.14	0.62	0.51	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	266	566	283	1371	984	836
d1, Uniform Delay [s]	36.99	24.23	40.08	9.11	22.42	11.06
k, delay calibration	0.04	0.14	0.11	0.29	0.10	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.21	0.73	6.89	4.02	7.50	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.27	0.46	0.85	0.85	0.97	0.02
d, Delay for Lane Group [s/veh]	40.69	29.76	136.07	13.43	44.51	11.06
Lane Group LOS	D	C	F	B	D	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.47	4.31	5.78	11.36	19.36	0.17
50th-Percentile Queue Length [ft/ln]	36.79	107.67	144.46	283.94	483.88	4.27
95th-Percentile Queue Length [veh/ln]	2.65	7.71	9.72	16.88	26.57	0.31
95th-Percentile Queue Length [ft/ln]	66.23	192.76	243.02	422.11	664.26	7.68

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.69	29.76	136.07	13.43	44.51	11.06
Movement LOS	D	C	F	B	D	B
d_A, Approach Delay [s/veh]	32.16		34.41		43.86	
Approach LOS	C		C		D	
d_I, Intersection Delay [s/veh]	37.53					
Intersection LOS	D					
Intersection V/C	0.783					

Sequence

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

Hyde Winery TIS
MD Existing plus Approved plus Project
W-Trans
6/8/2018

Intersection Level Of Service Report
Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	240.5
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.643

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	3	1	13	10	0	14	4	1156	13	17	999	13
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]	13	0	12	0	0	0	0	16	13	12	15	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	-9	0	0	-8	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]	16	1	25	10	0	14	4	1163	26	29	1006	13
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
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]	4	0	6	3	0	4	1	297	7	7	257	3
Total Analysis Volume [veh/h]	16	1	26	10	0	14	4	1187	27	30	1027	13
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes	Yes		
Storage Area [veh]	1	1	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.64	0.03	0.11	0.45	0.00	0.05	0.01	0.01	0.00	0.05	0.01	0.00
d_M, Delay for Movement [s/veh]	240.51	194.08	111.62	219.06	157.37	69.83	10.42	0.00	0.00	11.61	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	3.11	3.11	3.11	1.76	1.76	1.76	0.02	0.00	0.00	0.16	0.00	0.00
95th-Percentile Queue Length [ft/ln]	77.80	77.80	77.80	44.07	44.07	44.07	0.45	0.00	0.00	4.12	0.00	0.00
d_A, Approach Delay [s/veh]	161.49			132.01			0.03			0.33		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	4.46											
Intersection LOS	F											

Hyde Winery TIS
MD Existing plus Approved plus Project
W-Trans
6/8/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	235.0
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.616

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	18	78	1158	28	68	1006
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	6	28	0	3	27
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-9	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]	18	84	1177	28	71	1033
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	22	303	7	18	266
Total Analysis Volume [veh/h]	19	87	1213	29	73	1065
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	0.62	0.39	0.01	0.00	0.13	0.01
d_M, Delay for Movement [s/veh]	234.98	31.37	0.00	0.00	12.38	0.00
Movement LOS	F	D	A	A	B	A
95th-Percentile Queue Length [veh/ln]	2.03	1.76	0.00	0.00	0.45	0.00
95th-Percentile Queue Length [ft/ln]	50.76	43.89	0.00	0.00	11.15	0.00
d_A, Approach Delay [s/veh]	67.86		0.00		0.79	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	3.26					
Intersection LOS	F					

Hyde Winery TIS
MD Existing plus Approved plus Project
W-Trans
6/8/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	83.3
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.007

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	47	342	289	1008	928	16
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	6	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	-4	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]	58	422	357	1251	1154	19
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	109	92	322	297	5
Total Analysis Volume [veh/h]	60	435	368	1290	1190	20
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	
Bicycle Volume [bicycles/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	90	110	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	14	14	29	106	77	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
PM Future plus Project
W-Trans
6/12/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	179	179	179	179	179	179
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	24	58	29	144	110	110
g / C, Green / Cycle	0.13	0.32	0.16	0.80	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.03	0.27	0.21	0.69	0.64	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	238	511	288	1496	1145	973
d1, Uniform Delay [s]	69.32	56.50	74.86	11.27	34.45	13.45
k, delay calibration	0.04	0.50	0.50	0.50	0.50	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.20	16.20	149.36	6.79	37.40	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.25	0.85	1.28	0.86	1.04	0.02
d, Delay for Lane Group [s/veh]	73.02	77.50	313.33	18.37	86.45	13.45
Lane Group LOS	E	E	F	B	F	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.43	20.07	24.86	26.98	56.78	0.31
50th-Percentile Queue Length [ft/ln]	60.86	501.66	621.53	674.42	1419.50	7.68
95th-Percentile Queue Length [veh/ln]	4.38	27.41	36.97	35.49	71.63	0.55
95th-Percentile Queue Length [ft/ln]	109.54	685.32	924.33	887.37	1790.68	13.82

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	73.02	77.50	313.33	18.37	86.45	13.45
Movement LOS	E	E	F	B	F	B
d_A, Approach Delay [s/veh]	76.95		83.84		85.25	
Approach LOS	E		F		F	
d_I, Intersection Delay [s/veh]	83.33					
Intersection LOS	F					
Intersection V/C	1.007					

Sequence

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

Hyde Winery TIS
PM Future plus Project
W-Trans
6/12/2018

Intersection Level Of Service Report
Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	967.4
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.905

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	8	0	30	8	1	8	4	1035	8	24	961	19
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	0	12	0	0	0	0	0	6	6	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	-4	0	0	-4	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]	22	0	48	10	1	10	5	1274	16	36	1183	24
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
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]	6	0	13	3	0	3	1	335	4	9	311	6
Total Analysis Volume [veh/h]	23	0	51	11	1	11	5	1341	17	38	1245	25
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes	Yes		
Storage Area [veh]	1	1	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.91	0.00	0.27	1.17	0.05	0.05	0.01	0.01	0.00	0.08	0.01	0.00
d_M, Delay for Movement [s/veh]	967.36	852.82	688.49	789.20	586.25	421.75	11.64	0.00	0.00	12.69	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	8.28	8.28	8.28	3.25	3.25	3.25	0.03	0.00	0.00	0.24	0.00	0.00
95th-Percentile Queue Length [ft/ln]	207.00	207.00	207.00	81.30	81.30	81.30	0.69	0.00	0.00	6.06	0.00	0.00
d_A, Approach Delay [s/veh]	775.17			604.64			0.04			0.37		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	25.94											
Intersection LOS	F											

Hyde Winery TIS
PM Future plus Project
W-Trans
6/12/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	410.6
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.446

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	5	125	1041	11	75	1021
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	12	0	0	6
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-4	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]	6	154	1293	14	92	1267
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	41	344	4	24	337
Total Analysis Volume [veh/h]	6	164	1376	15	98	1348
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	0.45	0.92	0.01	0.00	0.20	0.01
d_M, Delay for Movement [s/veh]	410.63	101.33	0.00	0.00	14.13	0.00
Movement LOS	F	F	A	A	B	A
95th-Percentile Queue Length [veh/ln]	1.10	7.03	0.00	0.00	0.74	0.00
95th-Percentile Queue Length [ft/ln]	27.61	175.87	0.00	0.00	18.39	0.00
d_A, Approach Delay [s/veh]	112.24		0.00		0.96	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	6.81					
Intersection LOS	F					

Hyde Winery TIS
PM Future plus Project
W-Trans
6/12/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	58.2
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.875

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	69	248	230	1114	917	18
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	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	13	13	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	-8	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]	79	283	262	1283	1050	21
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	72	67	327	268	5
Total Analysis Volume [veh/h]	81	289	267	1309	1071	21
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	
Bicycle Volume [bicycles/h]	0		1		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	170
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	75	85	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	16	16	35	154	119	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
MD Future plus Project
W-Trans
6/12/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	149	149	149	149	149	149
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	24	53	25	114	85	85
g / C, Green / Cycle	0.16	0.35	0.17	0.77	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.05	0.18	0.15	0.70	0.57	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	280	561	293	1429	1063	903
d1, Uniform Delay [s]	55.37	37.98	61.12	13.59	31.99	13.93
k, delay calibration	0.04	0.50	0.27	0.50	0.46	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.21	3.36	22.06	10.71	28.43	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.29	0.52	0.91	0.92	1.01	0.02
d, Delay for Lane Group [s/veh]	59.08	46.14	172.28	24.60	75.02	13.93
Lane Group LOS	E	D	F	C	F	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.63	8.55	11.39	28.99	42.42	0.29
50th-Percentile Queue Length [ft/ln]	65.84	213.70	284.78	724.81	1060.46	7.34
95th-Percentile Queue Length [veh/ln]	4.74	13.34	16.93	37.82	53.47	0.53
95th-Percentile Queue Length [ft/ln]	118.50	333.57	423.16	945.57	1336.78	13.22

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.08	46.14	172.28	24.60	75.02	13.93
Movement LOS	E	D	F	C	F	B
d_A, Approach Delay [s/veh]	48.97		49.62		73.85	
Approach LOS	D		D		E	
d_I, Intersection Delay [s/veh]	58.25					
Intersection LOS	E					
Intersection V/C	0.875					

Sequence

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

Intersection Level Of Service Report
Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	527.6
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.063

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	3	1	13	10	0	14	4	1156	13	17	999	13
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	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	0	12	0	0	0	0	0	13	12	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	-9	0	0	-8	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]	16	1	27	11	0	16	5	1309	28	31	1131	15
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
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]	4	0	7	3	0	4	1	334	7	8	289	4
Total Analysis Volume [veh/h]	16	1	28	11	0	16	5	1336	29	32	1154	15
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes	Yes		
Storage Area [veh]	1	1	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.06	0.04	0.15	0.85	0.00	0.07	0.01	0.01	0.00	0.06	0.01	0.00
d_M, Delay for Movement [s/veh]	527.63	440.11	307.56	477.24	354.88	214.94	11.08	0.00	0.00	12.64	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	4.63	4.63	4.63	2.98	2.98	2.98	0.03	0.00	0.00	0.20	0.00	0.00
95th-Percentile Queue Length [ft/ln]	115.83	115.83	115.83	74.54	74.54	74.54	0.63	0.00	0.00	5.08	0.00	0.00
d_A, Approach Delay [s/veh]	388.75			321.80			0.04			0.34		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	10.08											
Intersection LOS	F											

Hyde Winery TIS
MD Future plus Project
W-Trans
6/12/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	540.9
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.150

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	18	78	1158	28	68	1006
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	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	12	0	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-9	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]	21	89	1323	32	78	1159
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	23	341	8	20	299
Total Analysis Volume [veh/h]	22	92	1364	33	80	1195
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	1.15	0.51	0.01	0.00	0.16	0.01
d_M, Delay for Movement [s/veh]	540.87	43.99	0.00	0.00	13.79	0.00
Movement LOS	F	E	A	A	B	A
95th-Percentile Queue Length [veh/ln]	3.06	2.54	0.00	0.00	0.58	0.00
95th-Percentile Queue Length [ft/ln]	76.43	63.38	0.00	0.00	14.50	0.00
d_A, Approach Delay [s/veh]	139.88		0.00		0.87	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	6.12					
Intersection LOS	F					

Hyde Winery TIS
MD Future plus Project
W-Trans
6/12/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	83.4
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.007

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	47	342	289	1008	928	16
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	33	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	-4	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]	58	422	357	1278	1154	19
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	109	92	329	297	5
Total Analysis Volume [veh/h]	60	435	368	1318	1190	20
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	
Bicycle Volume [bicycles/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	90	110	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	14	14	29	106	77	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
PM F + P + 150-P Event
W-Trans
9/11/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	179	179	179	179	179	179
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	24	58	29	144	110	110
g / C, Green / Cycle	0.13	0.32	0.16	0.80	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.03	0.27	0.21	0.71	0.64	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	238	511	288	1496	1145	973
d1, Uniform Delay [s]	69.32	56.50	74.86	11.85	34.45	13.45
k, delay calibration	0.04	0.50	0.50	0.50	0.50	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.20	16.20	149.36	7.78	37.40	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.25	0.85	1.28	0.88	1.04	0.02
d, Delay for Lane Group [s/veh]	73.02	77.50	313.33	19.94	86.45	13.45
Lane Group LOS	E	E	F	B	F	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.43	20.07	24.86	29.18	56.78	0.31
50th-Percentile Queue Length [ft/ln]	60.86	501.66	621.53	729.51	1419.50	7.68
95th-Percentile Queue Length [veh/ln]	4.38	27.41	36.97	38.04	71.63	0.55
95th-Percentile Queue Length [ft/ln]	109.54	685.32	924.33	950.99	1790.68	13.82

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	73.02	77.50	313.33	19.94	86.45	13.45
Movement LOS	E	E	F	B	F	B
d_A, Approach Delay [s/veh]	76.95		83.97		85.25	
Approach LOS	E		F		F	
d_I, Intersection Delay [s/veh]	83.40					
Intersection LOS	F					
Intersection V/C	1.007					

Sequence

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

Hyde Winery TIS
PM F + P + 150-P Event
W-Trans
9/11/2018

Intersection Level Of Service Report
Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	1,171.0
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.220

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	8	0	30	8	1	8	4	1035	8	24	961	19
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	0	12	0	0	0	0	0	33	33	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	-4	0	0	-4	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]	22	0	48	10	1	10	5	1274	43	63	1183	24
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
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]	6	0	13	3	0	3	1	335	11	17	311	6
Total Analysis Volume [veh/h]	23	0	51	11	1	11	5	1341	45	66	1245	25
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes	Yes		
Storage Area [veh]	1	1	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	2.22	0.00	0.27	1.39	0.06	0.05	0.01	0.01	0.00	0.13	0.01	0.00
d_M, Delay for Movement [s/veh]	1171.02	1037.32	842.93	982.05	747.34	544.06	11.64	0.00	0.00	13.41	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	8.68	8.68	8.68	3.45	3.45	3.45	0.03	0.00	0.00	0.46	0.00	0.00
95th-Percentile Queue Length [ft/ln]	217.11	217.11	217.11	86.23	86.23	86.23	0.69	0.00	0.00	11.47	0.00	0.00
d_A, Approach Delay [s/veh]	944.90			762.37			0.04			0.66		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	31.30											
Intersection LOS	F											

Hyde Winery TIS
PM F + P + 150-P Event
W-Trans
9/11/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	435.3
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.466

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	5	125	1041	11	75	1021
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	12	0	0	33
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-4	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]	6	154	1293	14	92	1294
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	41	344	4	24	344
Total Analysis Volume [veh/h]	6	164	1376	15	98	1377
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	0.47	0.92	0.01	0.00	0.20	0.01
d_M, Delay for Movement [s/veh]	435.29	101.33	0.00	0.00	14.13	0.00
Movement LOS	F	F	A	A	B	A
95th-Percentile Queue Length [veh/ln]	1.13	7.03	0.00	0.00	0.74	0.00
95th-Percentile Queue Length [ft/ln]	28.28	175.87	0.00	0.00	18.39	0.00
d_A, Approach Delay [s/veh]	113.11		0.00		0.94	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	6.79					
Intersection LOS	F					

Hyde Winery TIS
PM F + P + 150-P Event
W-Trans
9/11/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	59.1
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.875

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	69	248	230	1114	917	18
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	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	40	13	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	-8	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]	79	283	262	1310	1050	21
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	72	67	334	268	5
Total Analysis Volume [veh/h]	81	289	267	1337	1071	21
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	
Bicycle Volume [bicycles/h]	0		1		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	170
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	75	85	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	16	16	35	154	119	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
MD F + P + 150-P Event
W-Trans
9/11/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	149	149	149	149	149	149
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	24	53	25	114	85	85
g / C, Green / Cycle	0.16	0.35	0.17	0.77	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.05	0.18	0.15	0.72	0.57	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	280	561	293	1429	1063	903
d1, Uniform Delay [s]	55.37	37.98	61.12	14.31	31.99	13.93
k, delay calibration	0.04	0.50	0.27	0.50	0.46	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.21	3.36	22.06	12.73	28.43	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.29	0.52	0.91	0.94	1.01	0.02
d, Delay for Lane Group [s/veh]	59.08	46.14	172.28	27.34	75.02	13.93
Lane Group LOS	E	D	F	C	F	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.63	8.55	11.39	31.67	42.42	0.29
50th-Percentile Queue Length [ft/ln]	65.84	213.70	284.78	791.67	1060.46	7.34
95th-Percentile Queue Length [veh/ln]	4.74	13.34	16.93	40.90	53.47	0.53
95th-Percentile Queue Length [ft/ln]	118.50	333.57	423.16	1022.40	1336.78	13.22

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.08	46.14	172.28	27.34	75.02	13.93
Movement LOS	E	D	F	C	F	B
d_A, Approach Delay [s/veh]	48.97		51.47		73.85	
Approach LOS	D		D		E	
d_I, Intersection Delay [s/veh]	59.14					
Intersection LOS	E					
Intersection V/C	0.875					

Sequence

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

Hyde Winery TIS
MD F + P + 150-P Event
W-Trans
9/11/2018

Intersection Level Of Service Report
Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	639.7
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.221

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	3	1	13	10	0	14	4	1156	13	17	999	13
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	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	0	12	0	0	0	0	0	40	39	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	-9	0	0	-8	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]	16	1	27	11	0	16	5	1309	55	58	1131	15
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
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]	4	0	7	3	0	4	1	334	14	15	289	4
Total Analysis Volume [veh/h]	16	1	28	11	0	16	5	1336	56	59	1154	15
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes	Yes		
Storage Area [veh]	1	1	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.22	0.05	0.15	1.00	0.00	0.07	0.01	0.01	0.00	0.12	0.01	0.00
d_M, Delay for Movement [s/veh]	639.69	540.26	384.23	597.64	456.75	285.45	11.08	0.00	0.00	13.32	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	4.95	4.95	4.95	3.25	3.25	3.25	0.03	0.00	0.00	0.41	0.00	0.00
95th-Percentile Queue Length [ft/ln]	123.79	123.79	123.79	81.32	81.32	81.32	0.63	0.00	0.00	10.16	0.00	0.00
d_A, Approach Delay [s/veh]	478.53			412.64			0.04			0.64		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	12.43											
Intersection LOS	F											

Hyde Winery TIS
MD F + P + 150-P Event
W-Trans
9/11/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	574.9
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.200

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	18	78	1158	28	68	1006
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	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	12	0	0	39
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-9	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]	21	89	1323	32	78	1186
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	23	341	8	20	306
Total Analysis Volume [veh/h]	22	92	1364	33	80	1223
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	1.20	0.51	0.01	0.00	0.16	0.01
d_M, Delay for Movement [s/veh]	574.91	43.99	0.00	0.00	13.79	0.00
Movement LOS	F	E	A	A	B	A
95th-Percentile Queue Length [veh/ln]	3.11	2.54	0.00	0.00	0.58	0.00
95th-Percentile Queue Length [ft/ln]	77.76	63.38	0.00	0.00	14.50	0.00
d_A, Approach Delay [s/veh]	146.45		0.00		0.85	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	6.33					
Intersection LOS	F					

Hyde Winery TIS
MD F + P + 150-P Event
W-Trans
9/11/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	82.0
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.000

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	47	342	289	1008	928	16
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	-4	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]	58	422	357	1261	1142	19
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	109	92	325	294	5
Total Analysis Volume [veh/h]	60	435	368	1300	1177	20
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	
Bicycle Volume [bicycles/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	90	110	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	14	14	29	106	77	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
PM Future plus 90-P Event Only
W-Trans
9/11/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	179	179	179	179	179	179
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	24	58	29	144	110	110
g / C, Green / Cycle	0.13	0.32	0.16	0.80	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.03	0.27	0.21	0.70	0.63	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	238	511	288	1496	1145	973
d1, Uniform Delay [s]	69.31	56.49	74.86	11.47	34.45	13.45
k, delay calibration	0.04	0.50	0.50	0.50	0.49	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.20	16.19	149.34	7.13	33.75	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.25	0.85	1.28	0.87	1.03	0.02
d, Delay for Lane Group [s/veh]	73.02	77.48	313.29	18.90	82.80	13.45
Lane Group LOS	E	E	F	B	F	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.43	20.06	24.86	27.73	55.62	0.31
50th-Percentile Queue Length [ft/ln]	60.86	501.62	621.49	693.35	1390.38	7.68
95th-Percentile Queue Length [veh/ln]	4.38	27.41	36.97	36.37	69.61	0.55
95th-Percentile Queue Length [ft/ln]	109.54	685.28	924.27	909.27	1740.18	13.82

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	73.02	77.48	313.29	18.90	82.80	13.45
Movement LOS	E	E	F	B	F	B
d_A, Approach Delay [s/veh]	76.94		83.85		81.64	
Approach LOS	E		F		F	
d_I, Intersection Delay [s/veh]	82.05					
Intersection LOS	F					
Intersection V/C	1.000					

Sequence

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

Hyde Winery TIS
PM Future plus 90-P Event Only
W-Trans
9/11/2018

Intersection Level Of Service Report
Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	748.9
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.125

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	8	0	30	8	1	8	4	1035	8	24	961	19
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
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	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
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	16	16	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	-4	0	0	-4	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]	10	0	36	10	1	10	5	1274	26	46	1183	24
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
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]	3	0	9	3	0	3	1	335	7	12	311	6
Total Analysis Volume [veh/h]	11	0	38	11	1	11	5	1341	27	48	1245	25
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes	Yes		
Storage Area [veh]	1	1	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.96	0.00	0.20	1.12	0.05	0.05	0.01	0.01	0.00	0.10	0.01	0.00
d_M, Delay for Movement [s/veh]	538.45	417.48	243.12	748.87	574.96	397.65	11.64	0.00	0.00	12.93	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	4.54	4.54	4.54	3.20	3.20	3.20	0.03	0.00	0.00	0.32	0.00	0.00
95th-Percentile Queue Length [ft/ln]	113.57	113.57	113.57	80.12	80.12	80.12	0.69	0.00	0.00	7.89	0.00	0.00
d_A, Approach Delay [s/veh]	309.42			573.33			0.04			0.47		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	10.51											
Intersection LOS	F											

Hyde Winery TIS
PM Future plus 90-P Event Only
W-Trans
9/11/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	407.9
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.443

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	5	125	1041	11	75	1021
Base Volume Adjustment Factor	1.0830	1.0830	1.0830	1.0830	1.0830	1.0830
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	16
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-4	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]	6	154	1281	14	92	1277
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	41	341	4	24	340
Total Analysis Volume [veh/h]	6	164	1363	15	98	1359
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	0.44	0.91	0.01	0.00	0.20	0.01
d_M, Delay for Movement [s/veh]	407.92	96.50	0.00	0.00	14.00	0.00
Movement LOS	F	F	A	A	B	A
95th-Percentile Queue Length [veh/ln]	1.10	6.86	0.00	0.00	0.73	0.00
95th-Percentile Queue Length [ft/ln]	27.53	171.51	0.00	0.00	18.13	0.00
d_A, Approach Delay [s/veh]	107.49		0.00		0.94	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	6.54					
Intersection LOS	F					

Hyde Winery TIS
PM Future plus 90-P Event Only
W-Trans
9/11/2018

Intersection Level Of Service Report
Intersection 1: SR 12-121/Old Sonoma Road

Control Type:	Signalized	Delay (sec / veh):	57.0
Analysis Method:	HCM 2010	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.868

Intersection Setup

Name	Old Sonoma Road		SR12-121		SR12-121	
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	0	1	1	0	0	1
Pocket Length [ft]	100.00	230.00	310.00	100.00	100.00	410.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Old Sonoma Road		SR12-121		SR12-121	
Base Volume Input [veh/h]	69	248	230	1114	917	18
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	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	-8	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]	79	283	262	1286	1037	21
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	72	67	328	265	5
Total Analysis Volume [veh/h]	81	289	267	1312	1058	21
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	
Bicycle Volume [bicycles/h]	0		1		0	

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	170
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	4	4	5	2	6	0
Auxiliary Signal Groups		4,5				
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	9	9	9	30	30	0
Maximum Green [s]	24	24	29	75	85	0
Amber [s]	3.7	3.7	3.7	5.5	5.5	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	16	16	35	154	119	0
Vehicle Extension [s]	2.0	2.0	3.0	2.0	2.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	2.7	4.5	4.5	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	No	No	No	No	
Pedestrian Recall	No	No	No	No	No	
Detector Location [ft]	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
I, Upstream Filtering Factor	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

Hyde Winery TIS
MD Future + 90-P Event Only
W-Trans
9/11/2018

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	149	149	149	149	149	149
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	6.50	6.50	6.50
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]	2.70	0.00	2.70	4.50	4.50	4.50
g_i, Effective Green Time [s]	24	53	25	114	85	85
g / C, Green / Cycle	0.16	0.35	0.16	0.77	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.05	0.18	0.15	0.70	0.57	0.01
s, saturation flow rate [veh/h]	1774	1583	1774	1863	1863	1583
c, Capacity [veh/h]	280	561	293	1429	1063	903
d1, Uniform Delay [s]	55.36	37.99	61.13	13.66	31.79	13.92
k, delay calibration	0.04	0.50	0.27	0.50	0.45	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.21	3.36	22.16	10.91	25.12	0.00
d3, Initial Queue Delay [s]	3.50	4.80	89.10	0.30	14.60	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	0.29	0.52	0.91	0.92	1.00	0.02
d, Delay for Lane Group [s/veh]	59.07	46.15	172.39	24.87	71.51	13.92
Lane Group LOS	E	D	F	C	E	B
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.63	8.55	11.40	29.26	41.09	0.29
50th-Percentile Queue Length [ft/ln]	65.83	213.71	284.95	731.51	1027.28	7.34
95th-Percentile Queue Length [veh/ln]	4.74	13.34	16.93	38.13	51.60	0.53
95th-Percentile Queue Length [ft/ln]	118.49	333.58	423.37	953.29	1290.10	13.21

Generated with PTV VISTRO
Version 5.00-05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.07	46.15	172.39	24.87	71.51	13.92
Movement LOS	E	D	F	C	E	B
d_A, Approach Delay [s/veh]	48.98		49.81		70.39	
Approach LOS	D		D		E	
d_I, Intersection Delay [s/veh]	57.04					
Intersection LOS	E					
Intersection V/C	0.868					

Sequence

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

Hyde Winery TIS
MD Future + 90-P Event Only
W-Trans
9/11/2018

Intersection Level Of Service Report
Intersection 2: SR 12-121/Los Carneros Avenue

Control Type:	Two-way stop	Delay (sec / veh):	436.0
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.793

Intersection Setup

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
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	140.00	100.00	100.00	140.00	100.00	190.00
Speed [mph]	55.00			55.00			55.00			55.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Los Carneros Avenue			Driveway			SR12-121			SR 12-121		
Base Volume Input [veh/h]	3	1	13	10	0	14	4	1156	13	17	999	13
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	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
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	16	16	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	-9	0	0	-8	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]	3	1	15	11	0	16	5	1309	31	35	1131	15
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
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]	1	0	4	3	0	4	1	334	8	9	289	4
Total Analysis Volume [veh/h]	3	1	15	11	0	16	5	1336	32	36	1154	15
Pedestrian Volume [ped/h]	0			0			0			0		

Generated with PTV VISTRO
Version 5.00-05

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes	Yes		
Storage Area [veh]	1	1	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.20	0.04	0.08	0.79	0.00	0.07	0.01	0.01	0.00	0.07	0.01	0.00
d_M, Delay for Movement [s/veh]	263.75	174.57	38.83	435.98	335.29	191.38	11.08	0.00	0.00	12.73	0.00	0.00
Movement LOS	F	F	E	F	F	F	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.88	0.88	0.88	2.87	2.87	2.87	0.03	0.00	0.00	0.23	0.00	0.00
95th-Percentile Queue Length [ft/ln]	21.89	21.89	21.89	71.73	71.73	71.73	0.63	0.00	0.00	5.77	0.00	0.00
d_A, Approach Delay [s/veh]	81.49			291.03			0.04			0.38		
Approach LOS	F			F			A			A		
d_I, Intersection Delay [s/veh]	3.78											
Intersection LOS	F											

Hyde Winery TIS
MD Future + 90-P Event Only
W-Trans
9/11/2018

Intersection Level Of Service Report
Intersection 3: SR 12-121/Cuttings Wharf Road

Control Type:	Two-way stop	Delay (sec / veh):	530.0
Analysis Method:	HCM 2010	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.134

Intersection Setup

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	170.00	100.00
Speed [mph]	55.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Cuttings Wharf Road		SR 12-121		SR 12-121	
Base Volume Input [veh/h]	18	78	1158	28	68	1006
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	1.14	1.14	1.14	1.14	1.14	1.14
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	16
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-9	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]	21	89	1311	32	78	1163
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	23	338	8	20	300
Total Analysis Volume [veh/h]	22	92	1352	33	80	1199
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 5.00-05

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	1.13	0.50	0.01	0.00	0.16	0.01
d_M, Delay for Movement [s/veh]	530.03	42.84	0.00	0.00	13.68	0.00
Movement LOS	F	E	A	A	B	A
95th-Percentile Queue Length [veh/ln]	3.04	2.48	0.00	0.00	0.57	0.00
95th-Percentile Queue Length [ft/ln]	75.99	61.95	0.00	0.00	14.32	0.00
d_A, Approach Delay [s/veh]	136.86		0.00		0.86	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	6.01					
Intersection LOS	F					

Hyde Winery TIS
MD Future + 90-P Event Only
W-Trans
9/11/2018

Appendix D

Trip Generation Spreadsheets

Winery Traffic Information / Trip Generation Sheet

Project Name: Larry Hyde & Sons Winery Project Scenario: Existing

Traffic during a Typical Weekday

Number of FT employees: 2 x 3.05 one-way trips per employee = 6 daily trips.

Number of PT employees: 2 x 1.90 one-way trips per employee = 4 daily trips.

Average number of weekday visitors: 20 / 2.6 visitors per vehicle x 2 one-way trips = 15 daily trips.

Gallons of production: 30000 / 1,000 x .009 truck trips daily[3] x 2 one-way trips = 1 daily trips.

Total = 26 **daily trips.**

Number of total weekday trips x .38 = 10 **PM peak trips.**

Traffic during a Typical Saturday

Number of FT employees (on Saturdays): 2 x 3.05 one-way trips per employee = 6 daily trips.

Number of PT employees (on Saturdays): 2 x 1.90 one-way trips per employee = 4 daily trips.

Average number of weekend visitors: 20 / 2.8 visitors per vehicle x 2 one-way trips = 14 daily trips.

Total = 24 **daily trips.**

Number of total Saturday trips x .57 = 14 **PM peak trips.**

Traffic during a Crush Saturday

Number of FT employees (during crush): 2 x 3.05 one-way trips per employee = 6 daily trips.

Number of PT employees (during crush): 2 x 1.90 one-way trips per employee = 4 daily trips.

Average number of weekend visitors: 20 / 2.8 visitors per vehicle x 2 one-way trips = 14 daily trips.

Gallons of production: 30000 / 1,000 x .009 truck trips daily x 2 one-way trips = 1 daily trips.

Avg. annual tons of grape on-haul: 0 x .11 truck trips daily [4] x 2 one-way trips = 0 daily trips.

Total = 25 **daily trips.**

Number of total Saturday trips x .57 = 14 **PM peak trips.**

Largest Marketing Event- Additional Traffic

Number of event staff (largest event): 5 x 2 one-way trips per staff person = 10 trips.

Number of visitors (largest event): 30 / 2.8 visitors per vehicle x 2 one-way trips = 21 trips.

Number of special event truck trips (largest event): 2 x 2 one-way trips = 4 trips.

[3] Assumes 1.47 materials & supplies trips + 0.8 case goods trips per 1,000 gallons of production / 250 days per year (see *Traffic Information Sheet Addendum* for reference).

[4] Assumes 4 tons per trip / 36 crush days per year (see *Traffic Information Sheet Addendum* for reference).

Winery Traffic Information / Trip Generation Sheet

Project Name: Larry Hyde & Sons Winery Project Scenario: Proposed

Traffic during a Typical Weekday

Number of FT employees: 5 x 3.05 one-way trips per employee = 15 daily trips.

Number of PT employees: 4 x 1.90 one-way trips per employee = 8 daily trips.

Average number of weekday visitors: 125 / 2.6 visitors per vehicle x 2 one-way trips = 96 daily trips.

Gallons of production: 30000 / 1,000 x .009 truck trips daily[3] x 2 one-way trips = 1 daily trips.

Total = 120 **daily trips.**

Number of total weekday trips x .38 = 46 **PM peak trips.**

Traffic during a Typical Saturday

Number of FT employees (on Saturdays): 5 x 3.05 one-way trips per employee = 15 daily trips.

Number of PT employees (on Saturdays): 4 x 1.90 one-way trips per employee = 8 daily trips.

Average number of weekend visitors: 125 / 2.8 visitors per vehicle x 2 one-way trips = 89 daily trips.

Total = 112 **daily trips.**

Number of total Saturday trips x .57 = 64 **PM peak trips.**

Traffic during a Crush Saturday

Number of FT employees (during crush): 5 x 3.05 one-way trips per employee = 15 daily trips.

Number of PT employees (during crush): 4 x 1.90 one-way trips per employee = 8 daily trips.

Average number of weekend visitors: 125 / 2.8 visitors per vehicle x 2 one-way trips = 89 daily trips.

Gallons of production: 30000 / 1,000 x .009 truck trips daily x 2 one-way trips = 1 daily trips.

Avg. annual tons of grape on-haul: 0 x .11 truck trips daily [4] x 2 one-way trips = 0 daily trips.

Total = 113 **daily trips.**

Number of total Saturday trips x .57 = 64 **PM peak trips.**

Largest Marketing Event- Additional Traffic

Number of event staff (largest event): 10 x 2 one-way trips per staff person = 20 trips.

Number of visitors (largest event): 150 / 2.8 visitors per vehicle x 2 one-way trips = 107 trips.

Number of special event truck trips (largest event): 2 x 2 one-way trips = 4 trips.

[3] Assumes 1.47 materials & supplies trips + 0.8 case goods trips per 1,000 gallons of production / 250 days per year (see *Traffic Information Sheet Addendum* for reference).

[4] Assumes 4 tons per trip / 36 crush days per year (see *Traffic Information Sheet Addendum* for reference).

Appendix E

Warrant Analyses

Warrant 3: Peak-Hour Volumes and Delay

SR 12-121 & Los Carneros Avenue
Napa County

Project Name: Hyde Winery TIS

Intersection: 2

	Major Street	Minor Street
Street Name	SR 12-121	Los Carneros Avenue
Direction	E-W	N-S
Number of Lanes	2	2
Approach Speed	55	55

Population less than 10,000? No
Date of Count: Thursday, April 05, 2018
Scenario: PM Existing plus Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 5.01 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 65 vph

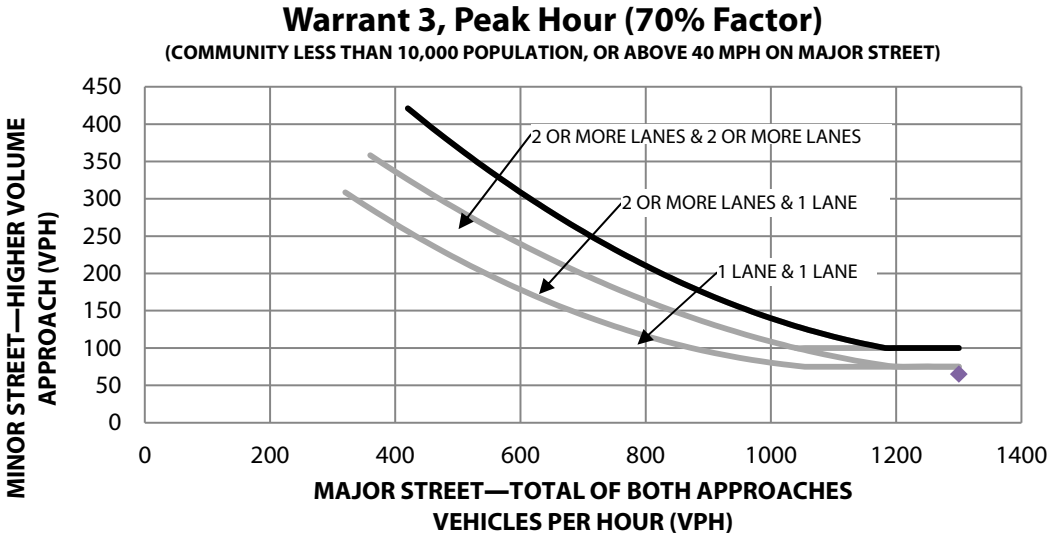
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 2310 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 12-121 & Los Carneros Avenue
Napa County

Project Name: Hyde Winery TIS

Intersection: 2

	Major Street	Minor Street
Street Name	SR 12-121	Los Carneros Avenue
Direction	E-W	N-S
Number of Lanes	2	2
Approach Speed	55	55

Population less than 10,000? No
Date of Count: Saturday, April 14, 2018
Scenario: MD Existing plus Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 1.71 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 42 vph

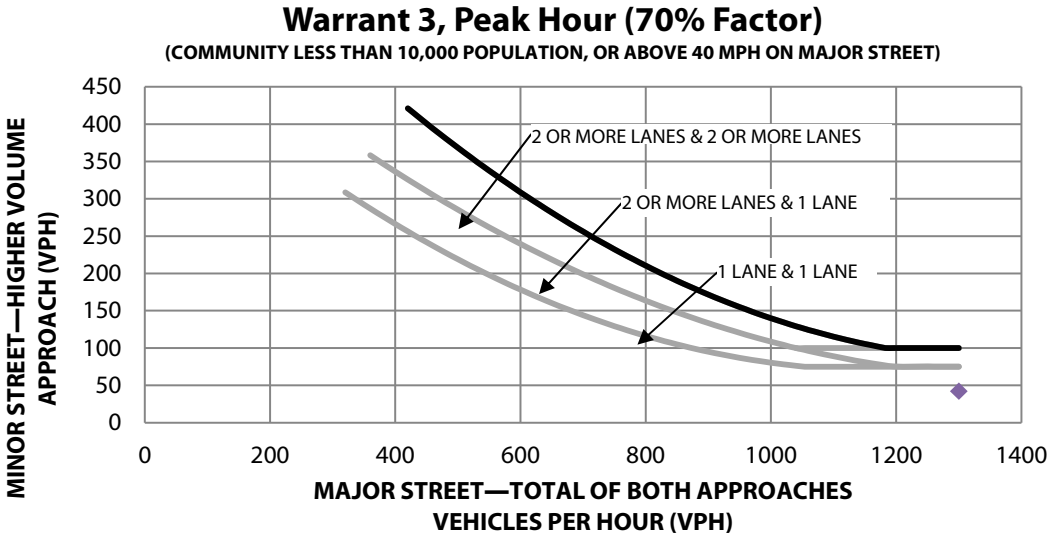
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 2276 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 12-121 & Los Carneros Avenue
Napa County

Project Name: Hyde Winery TIS

Intersection: 2

	Major Street	Minor Street
Street Name	SR 12-121	Los Carneros Avenue
Direction	E-W	N-S
Number of Lanes	2	2
Approach Speed	55	55

Population less than 10,000? No
Date of Count: Thursday, April 05, 2018
Scenario: PM Baseline plus Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 5.59 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 65 vph

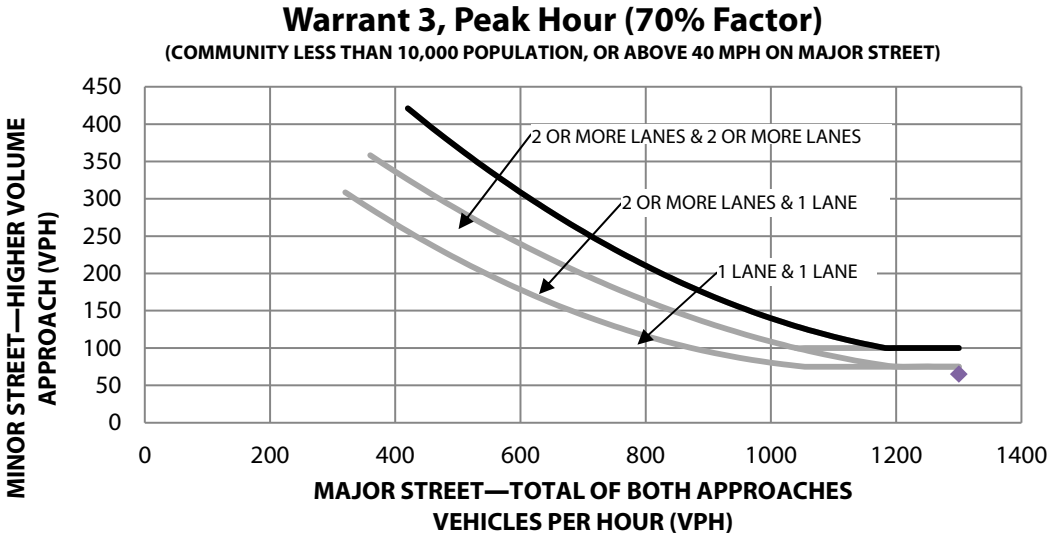
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 2344 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 12-121 & Los Carneros Avenue
Napa County

Project Name: Hyde Winery TIS

Intersection: 2

	Major Street	Minor Street
Street Name	SR 12-121	Los Carneros Avenue
Direction	E-W	N-S
Number of Lanes	2	2
Approach Speed	55	55

Population less than 10,000? No
Date of Count: Saturday, April 14, 2018
Scenario: MD Baseline plus Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 1.88 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 42 vph

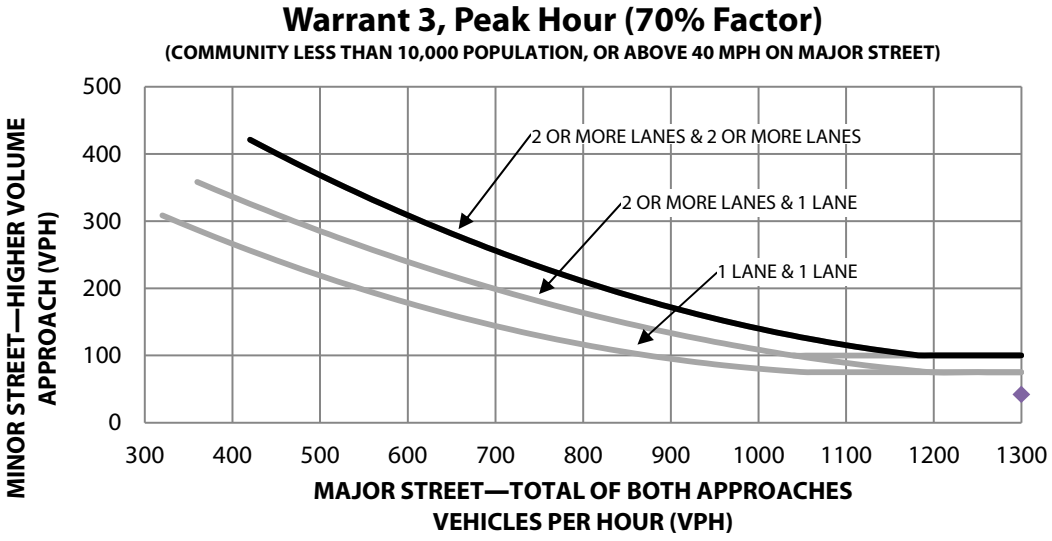
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 2307 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 12-121 & Los Carneros Avenue
Napa County

Project Name: Hyde Winery TIS

Intersection: 2

	Major Street	Minor Street
Street Name	SR 12-121	Los Carneros Avenue
Direction	E-W	N-S
Number of Lanes	2	2
Approach Speed	55	55

Population less than 10,000? No
Date of Count:
Scenario: PM Future plus Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 15.07 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 70 vph

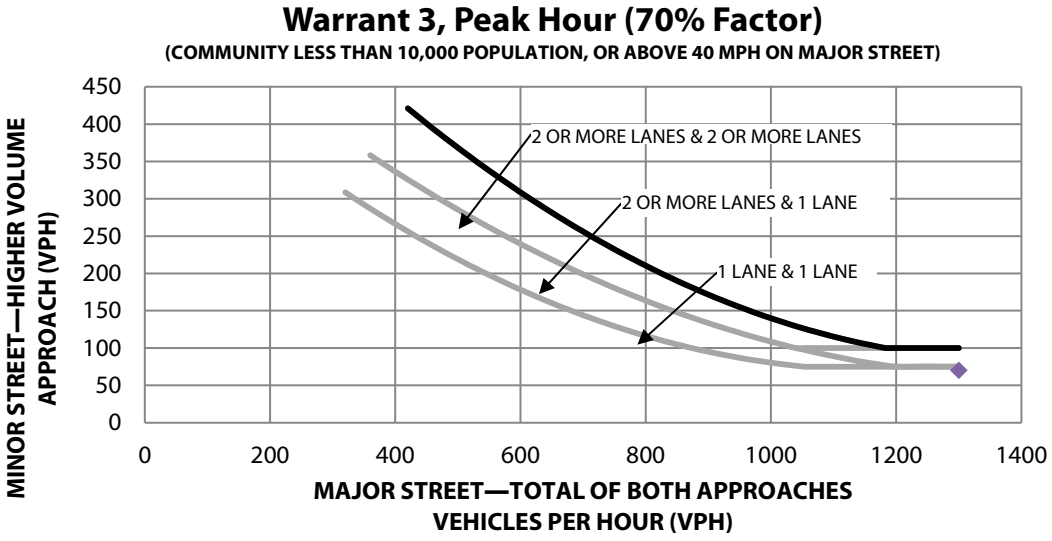
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 2629 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 12-121 & Los Carneros Avenue
Napa County

Project Name: Hyde Winery TIS

Intersection: 2

	Major Street	Minor Street
Street Name	SR 12-121	Los Carneros Avenue
Direction	E-W	N-S
Number of Lanes	2	2
Approach Speed	55	55

Population less than 10,000? No
Date of Count:
Scenario: MD Future plus Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 4.75 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 44 vph

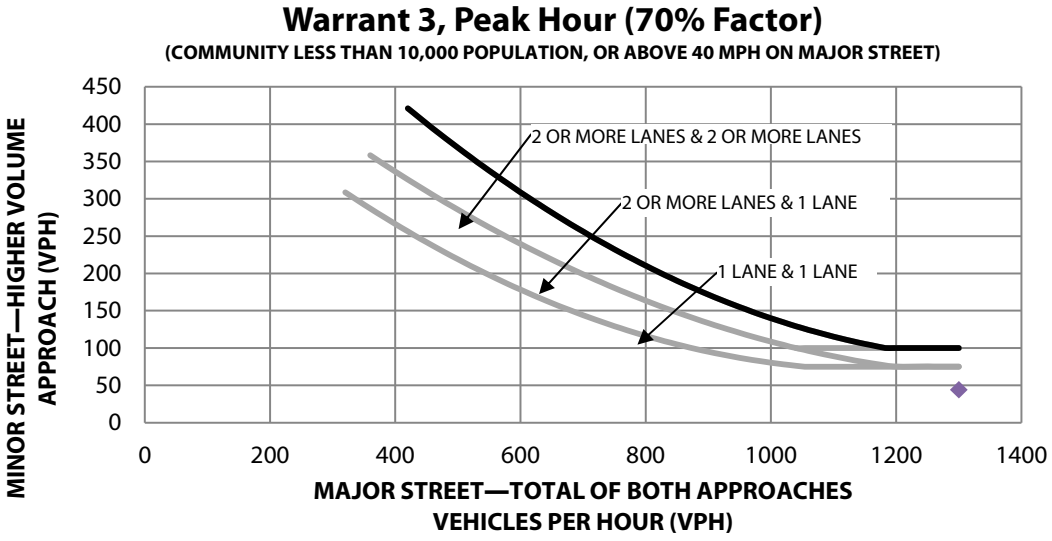
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 2590 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 12-121 & Los Carneros Avenue
Napa County

Project Name: Hyde Winery TIS

Intersection: 2

	Major Street	Minor Street
Street Name	SR 12-121	Los Carneros Avenue
Direction	E-W	N-S
Number of Lanes	2	2
Approach Speed	55	55

Population less than 10,000? No
Date of Count:
Scenario: PM Future plus 90-Person Event Only

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 3.95 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 46 vph

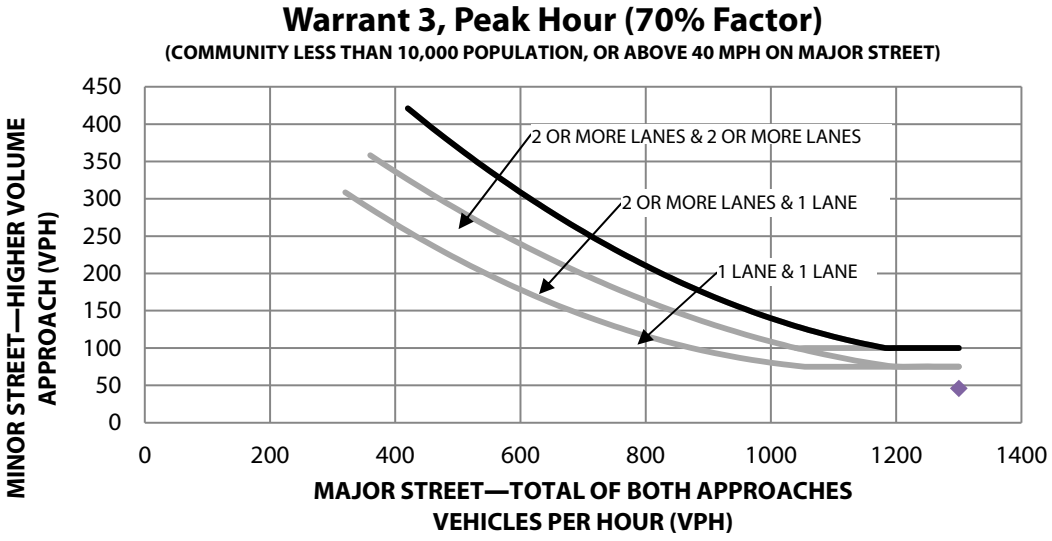
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 2622 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 12-121 & Los Carneros Avenue
Napa County

Project Name: Hyde Winery TIS

Intersection: 2

	Major Street	Minor Street
Street Name	SR 12-121	Los Carneros Avenue
Direction	E-W	N-S
Number of Lanes	2	2
Approach Speed	55	55

Population less than 10,000? No
Date of Count:
Scenario: MD Future plus 90-Person Event Only

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 2.18 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 27 vph

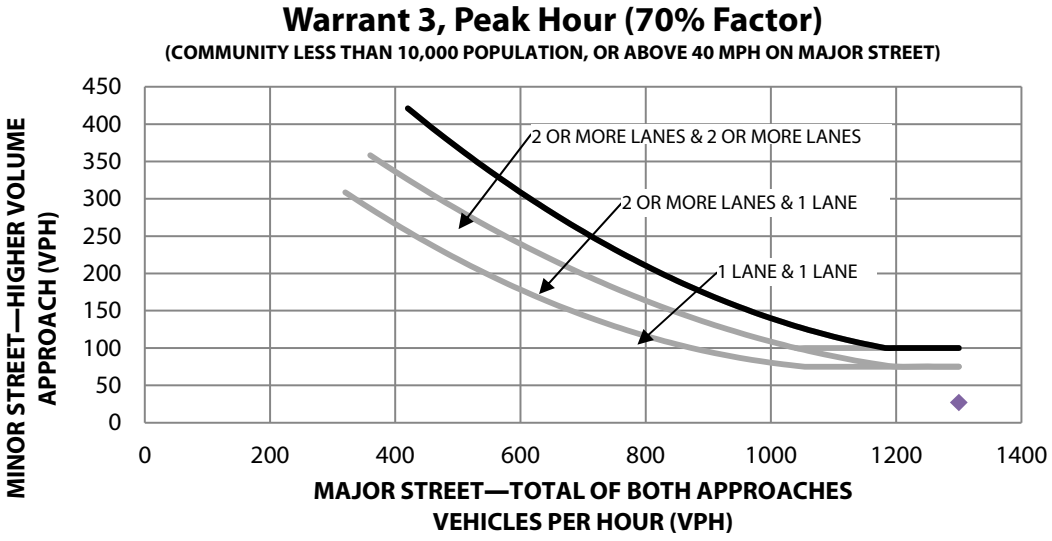
Condition A3 — Met

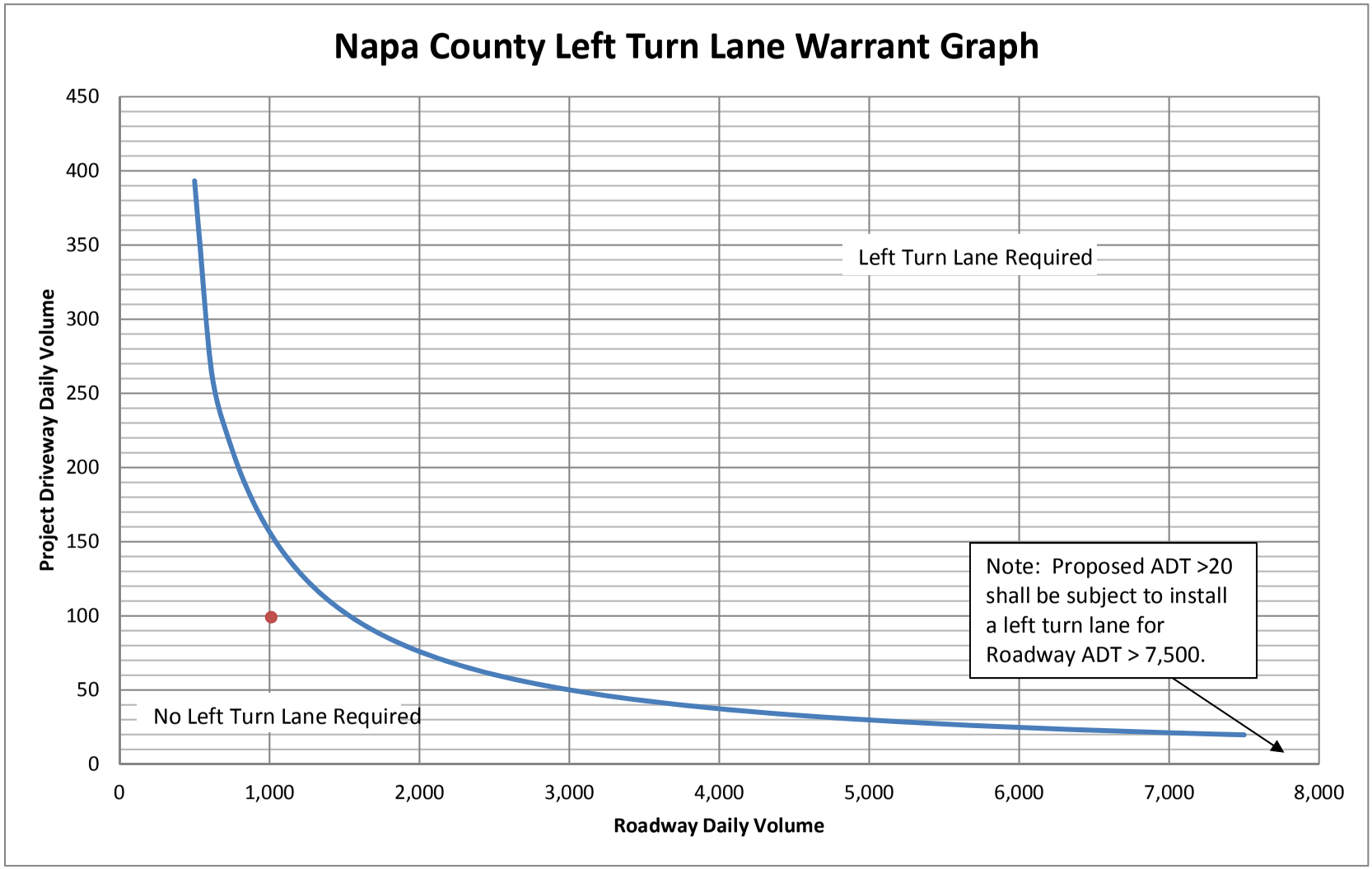
The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 2572 vph

Condition B — Not Met

The plotted point falls above the curve




Napa County Left Turn Lane Warrant Graph
Project Driveway Daily Volume
450
400
350
300
250
200
150
100
50
0
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
Roadway Daily Volume
Left Turn Lane Required
No Left Turn Lane Required
Note: Proposed ADT >20 shall be subject to install a left turn lane for Roadway ADT > 7,500.

Appendix F

Napa County Significance Criteria

County of Napa Significance Criteria

SIGNALIZED INTERSECTION CRITERIA

PM EXISTING

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				51		370	313	1092			1005	17

PM EXISTING PLUS PROJECT

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				51		370	313	1098			1013	17

Project Volume Contribution	0.49%
One Percent Threshold Exceeded?	**NO**

MD EXISTING

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				69		248	230	1114			917	18

MD EXISTING PLUS PROJECT

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				69		248	230	1127			922	18

Project Volume Contribution	0.69%
One Percent Threshold Exceeded?	**NO**

UNSIGNALIZED TWO-WAY STOP-CONTROLLED INTERSECTION CRITERIA

PM EXISTING

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	9	0	32	9	1	9	4	1121	9	26	1041	21
3	5		135					1127	12	81	1106	

PM EXISTING PLUS PROJECT

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	21	0	44	9	1	9	4	1117	15	32	1037	21
3	5		135					1135	12	81	1112	

	Minor Street Approaches		
	Int 2-NB	Int 2-SB	Int 3-NB
Project Volume Contribution	37%	0%	0%
Ten Percent Threshold Exceeded?	**YES**	**NO**	**NO**

MD EXISTING

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	3	1	13	10	0	14	4	1156	13	17	999	13
3	18		78					1158	28	68	1006	

MD EXISTING PLUS PROJECT

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	16	1	25	10	0	14	4	1147	26	29	991	13
3	18		78					1161	28	68	1018	

	Minor Street Approaches		
	Int 2-NB	Int 2-SB	Int 3-NB
Project Volume Contribution	60%	0%	0%
Ten Percent Threshold Exceeded?	**YES**	**NO**	**NO**

FUTURE CRITERIA

PM FUTURE

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				58		422	357	1245			1146	19
2	10	0	36	10	1	10	5	1278	10	30	1187	24
3	6		154					1285	14	92	1261	

PM FUTURE PLUS PROJECT

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				58		422	363	1245			1154	19
2	22	0	48	10	1	10	5	1274	16	36	1183	24
3	6		154					1293	14	92	1267	

	Int 1	Int 2	Int 3
Project Volume Contribution	3.51%	8.76%	4.06%
Five Percent Threshold Exceeded?	**NO**	**YES**	**NO**

MD FUTURE

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				79		283	262	1270			1045	21
2	3	1	15	11	0	16	5	1318	15	19	1139	15
3	21	0	89	0	0	0	0	1320	32	78	1147	0

MD FUTURE PLUS PROJECT

Int	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1				79		283	262	1283			1050	21
2	16	1	27	11	0	16	5	1309	28	31	1131	15
3	21		89					1323	32	78	1159	

	Int 1	Int 2	Int 3
Project Volume Contribution	4.95%	10.51%	4.55%
Five Percent Threshold Exceeded?	**NO**	**YES**	**NO**