

“H”

Traffic Impact Study



October 4, 2019

Ms. Karen Fontanella
Fontanella Family Winery
1721 Patrick Road
Napa, CA 94558

Addendum to the *Traffic Impact Study for the Fontanella Winery Project*

Dear Ms. Fontanella;

As requested, we have prepared this addendum to the *Traffic Impact Study for the Fontanella Winery Project* (TIS), July 29, 2019, based on the updated site plan received. Specifically, the project's parking supply has been modified and now includes nine permanent parking spaces, while the project as evaluated included 17 permanent spaces and the application as submitted included 11 parking spaces.

The project's parking demand was updated to reflect the change in the proposed parking supply. Following is the parking section from the TIS, edited to reflect the project as now proposed. This new text supersedes the parking section in the traffic study.

Parking

The project was analyzed to determine whether the proposed parking supply would be sufficient for the anticipated daily demand during harvest conditions as well as during events. The project site, as proposed, would have seven standard parking spaces and two accessible parking spaces for a total of nine permanent parking spaces. It is understood that the crush pad area and unpaved drive aisle shoulders would be used for temporary overflow parking for events.

To accommodate the daily parking demand for the tasting room, there should be at least one space provided for every employee on-site, as well as parking stalls for about 25 percent of the expected daily tasting room visitors (counts performed at numerous wineries in Napa County indicate that the peak visitation typically represents less than 20 percent of the daily volume, so this assumption is slightly conservative). Although tours and tastings would occur by appointment only, for the purpose of the parking analysis it was conservatively assumed that one-quarter of the daily guests could be on site at any one time. During harvest and with a small VIP marketing event in occurrence, there would be six employees and a maximum of 22 visitors per day to the tasting room. Assuming the County's standard occupancy rate of 2.8 guests per vehicle, a total of eight guest vehicles would visit the site over the course of the day. Therefore, the proposed project would need at least eight standard parking spaces, six for employees and two for guests to satisfy the parking demand during the peak period. Therefore, the applicant should either convert one of the proposed ADA spaces to a standard space, resulting in eight standard parking spaces, or add one standard parking space to the proposed supply, bringing the total to ten spaces.

The maximum number of parking spaces that would be needed on-site to accommodate employees and visitors during a 150-person harvest event was also estimated using the County's standard vehicle occupancies of one employee or 2.8 visitors per vehicle. However, it is noted that the largest events, including the 75-person and 150-person events, would have a "rolling" attendance, meaning that not all attendees would be on-site at the same time. The maximum number of guests that would be at the site simultaneously is anticipated to be 75 percent of the total attendance. Based on these operational parameters, during a 150-person event, a total of 51 parking spaces would be needed, including 40 for guests, five for event staff, and six for winery employees. Therefore, the total permanent parking supply at the winery is insufficient to meet the anticipated parking demand for the largest event, experiencing a shortfall of 42 spaces. The applicant should ensure that the on-site temporary overflow parking can accommodate up to 42 vehicles.

The second largest event would be a 75-person event and would also have a "rolling" attendance. Assuming staffing levels are the same as the largest 150-person event and that a maximum of 75 percent of event attendees would be on-site simultaneously, the parking required for a 75-person event would be 31 spaces, including 20 for guests, five for event staff, and six for winery employees. Therefore, this event would also require an on-site overflow parking supply.

Finally, a 30-person event would require 17 vehicle parking spaces assuming only the six full-time staff are needed (no event staff) and all event attendees would be on-site at the same time. The proposed supply of nine spaces is inadequate to meet the demand for these small events.

Recommendation – The applicant should provide eight standard parking spaces to satisfy the typical peak parking demand either by converting one of the proposed ADA spaces to a standard space or by creating an additional standard space.

Recommendation – The applicant should close the tasting room during 30-, 75-, and 150-person events and allocate the permanent parking supply to event traffic. Also, the applicant should provide on-site overflow parking to accommodate up to 42 additional vehicles.

Please contact me if you have any further questions about this analysis. Thank you for giving us the opportunity to provide these services.

Sincerely,



Kevin Rangel, EIT
Assistant Engineer III



Dalene J. Whitlock, PE, PTOE
Senior Principal





July 29, 2019

Ms. Karen Fontanella
Fontanella Family Winery
1721 Patrick Road
Napa, CA 94558

Traffic Impact Study for the Fontanella Winery Project

Dear Ms. Fontanella;

As requested, W-Trans has prepared a focused traffic analysis addressing potential traffic impacts and circulation needs for the proposed change in Conditional Use Permit for the Fontanella Family Winery located at 1721 Partrick Road in the County of Napa. The traffic analysis was completed in accordance with the criteria established by the County of Napa, provides information based on a scope of work approved by County staff, and is consistent with standard traffic engineering techniques.

Project Description

The project site is located at 1721 Partrick Road in the County of Napa. The project would modify the Conditional Use Permit to allow for a peak of 14 visitors per day, up from the four visitors per day currently permitted. Additionally, the proposed modification would increase employees from three full-time and two part-time staff to six full-time employees. The winery's special event allowance would be modified to include 50 VIP marketing events with eight guests, six events with 30 guests, one industry-wide event with up to 75 guests, and one harvest event with a maximum of 150 guests. Five event employees, in addition to the six proposed full-time winery staff, would be scheduled during the largest 150-person event. An existing driveway on Partrick Road would continue to provide access to the winery.

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 April 1, 2014 through March 31, 2019.

The calculated collision rate for the study roadway segment was compared to the average collision rate for similar facilities statewide, as indicated in *2014 Collision Data on California State Highways*, California Department of Transportation (Caltrans). The study roadway experienced two collisions over the five-year study period, which translates to a below-average collision rate of 1.71 collisions per million vehicle miles (c/mvm) versus an average rate statewide of 2.22 c/mvm. It is further noted that the recorded collisions did not result in any injuries; therefore, the study roadway is operating acceptably with regards to safety. The collision rate calculation is enclosed.

Existing Conditions

The study area consists of the intersection of Partrick Road/Browns Valley Road and the segment of Partrick Road that runs from the project driveway to the City of Napa limits. It is noted that there are two intersections of the two roadways. Because the north leg of the westerly intersection was closed due to storm-related damage, turning movement counts for the easterly intersection of Partrick Road/Browns Valley Road were collected on March 16, 2019 between 2:00 and 4:00 p.m., as this was determined to be the period of the highest volume on Partrick Road.

Partrick Road is classified as a general minor road in the Napa County Road Classification section of the General Plan. It generally runs east-west in the study area, has a width of 22 feet, and is located in winding, rolling terrain. The study segment of Partrick Road has a posted speed limit of 30 miles per hour (mph) near the City limits and a *prima facie* speed limit of 55 mph near the project driveway, which is located outside the City limits in the County of Napa. Vehicle counts were obtained on Partrick Road near both the project driveway and the Napa City limits for a period of four days from Thursday, October 26 to Sunday, October 29, 2017. The highest volume over the four days was experienced on Saturday near the City limits, with 455 vehicles recorded for the day. The peak hour on Saturday was from 3:00 to 4:00 p.m. with 49 vehicles recorded in that hour. The turning movement and segment counts are enclosed.

Intersection Operation

The Levels of Service for the easterly intersection of Partrick Road/Browns Valley Road 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.

Under existing conditions, the intersection of Partrick Road/Browns Valley Road is operating acceptably at LOS A overall and LOS B on the stop-controlled Browns Valley Road approach during the weekend peak hour. Copies of the Level of Service calculations for all evaluated scenarios are enclosed.

Roadway Segment Operation

The roadway segment Level of Service methodology found in Chapter 15, "Two-Lane Highways," of the *Highway Capacity Manual* is the basis of the automobile LOS analysis. The methodology considers traffic volumes, terrain, roadway cross-section, the proportion of heavy vehicles, and the availability of passing zones. The LOS criteria for two-lane highways differs depending on the classification applicable to the highway. Partrick Road was considered a Class II highway, which is one where motorists do not necessarily expect to travel at high speeds, which often function as scenic or recreational routes and typically serve shorter trips. The County of Napa's adopted LOS Standard is contained in *Napa County General Plan Update 2008*. Policy CIR-16 states that the County shall seek to maintain an arterial Level of Service D or better on all county roadways.

Based on existing volumes collected in October 2017, the study segment operates acceptably at LOS A in both directions during both peak periods.

Trip Generation

The Napa County Winery Traffic Information/Trip Generation Form was used to determine the potential trip generation for the existing operation (as permitted) and proposed conditions. The form estimates the number of daily and peak hour trips for weekdays and Saturdays based on the number of full- and part-time employees, average daily visitors, and production. Based on the current Conditional Use Permit parameters the site is currently generating six trips during the weekday p.m. peak hour and nine trips during the weekend midday peak hour. The proposed changes to the Conditional Use Permit would be expected to result in a total of 14 trips during the weekday p.m. peak hour and 19 trips during the weekend midday peak hour, or an increase of eight and ten trips during the two peaks, respectively, over permitted conditions. It is noted that because small VIP events would occur at least once per week, the guests attending these events were added to the number of proposed daily visitors under both daily weekday and Saturday conditions, resulting in a conservative analysis.

The County's form does not include guidance on inbound versus outbound trips, so based on extensive data collected at a tasting facility in Sonoma County it was assumed that two-thirds of trips at the winery would be outbound during the weekday p.m. peak hour as employees and customers leave at closure of the winery; for the

weekend midday peak hour it was assumed that inbound and outbound trips would be evenly split. The results based on application of these assumptions are shown in Table 1. The Winery Traffic Information/Trip Generation Forms for both permitted and proposed conditions are enclosed for reference.

Table 1 – Trip Generation Summary – Typical Conditions

Condition	Weekday	Weekday PM Peak Hour			Weekend MD Peak Hour		
	Trips	Trips	In	Out	Trips	In	Out
Permitted (Existing)	17	6	2	4	9	5	4
Proposed	36	14	5	9	19	10	9
Net New Trips	19	8	3	5	10	5	5

Traffic that would occur during a Crush Saturday was also tabulated, as shown in Table 2. The modified Conditional Use Permit would be expected to result in an average of 19 additional daily trips during a Crush Saturday, including 11 trips during the peak hour; these trips represent the increase in traffic associated with the proposed use permit compared to currently permitted conditions. It is noted that with only 19 daily trips anticipated for the change in use, a traffic study would not be required if this were a new winery use under the draft guidelines for winery analyses currently under consideration by County staff. This nominal increase in trips would therefore reasonably be expected to have a minimal impact on traffic operation.

Table 2 – Trip Generation Summary – Crush Saturday

Condition	Daily	Weekend MD Peak Hour		
	Trips	Trips	In	Out
Permitted (Existing)	18	10	5	5
Proposed	37	21	10	11
Net New Trips	19	11	5	6

In addition to typical daily and crush Saturday operations, the anticipated trip generation for the largest proposed event, one with 150 guests, was also estimated. It is noted that the timing of events is unknown, so to provide the most conservative analysis it was assumed the largest 150-person event could occur during the peak hour either on a weekday or weekend day, so both were evaluated.

Based on the County's Winery Traffic Information/Trip Generation Form, a 150-person marketing event would be expected to generate a total of 123 trips, including 107 trips for guests, 10 trips for employees, and 6 trips for special event trucks. For the purpose of estimating the peak hour trip generation it was assumed that all guests would be arriving at the site during the peak hour on either a weekday or weekend day. Event-specific 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. The winery's six full-time employees would also work the event, resulting in a total of 11 staff. Similarly, the trucks associated with such events would be expected to arrive at and depart from the site outside hours or even days before and after the event.

Trip Distribution

The pattern used to allocate new project trips to the street network was determined based on likely origins and destinations for patrons of the project. Because the winery is located west of the City of Napa, with limited destinations to the west, it was assumed that 100 percent of trips would be to and from the east on Partrick Road.

Capacity Analysis

Future plus Project plus 150-Person Event 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). It is noted that the County model does not include volume projections for the eastbound Partrick Road and westbound Browns Valley Road approaches to the easterly intersection. For comparison, available model volumes for the nearby intersection of Browns Valley Road/McCormick Lane were used to calculate an overall growth factor of 1.19 for the intersection. However, to arrive an analysis representative of “worst-case” conditions, an overall growth factor of 2.0 was applied to the Partrick Road/Browns Valley Road intersection.

Base year (2015) and future (2040) segment volumes for the weekday p.m. peak period were used to calculate growth factors in each direction for the study roadway segment. The growth factors projected by the model were then adjusted to account for the four years of growth that have already occurred since 2015. 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. The model is projecting an increase in traffic volumes that results in a growth factor of 1.51 in the northbound direction; however, the model projects a decrease in volumes for the southbound direction. Given that existing traffic volumes on Partrick Road near the Napa City limits are generally low, the model-projected growth would result in a relatively minor increase to the volumes; in other words, because the volumes are so low, application of a growth factor results in an increase that is inconsistent with the increase in volumes anticipated on higher volume roads. Therefore, to arrive at an analysis representative of “worst-case” conditions, the growth factor projected by the model was doubled and the resulting growth factor of three was applied to the existing volumes for Partrick Road.

The Future plus Project plus 150-person Event volumes during a typical weekday p.m. peak period and crush Saturday peak period were analyzed. Under these worst-case, or highest volume, conditions, the study intersection is expected to continue operating acceptably at LOS A overall and LOS C on the stop-controlled Browns Valley Road approach during the weekend peak hour. Under these same conditions, the eastbound study segment of Partrick Road would operate acceptably at LOS B and the westbound segment would operate acceptably at LOS C during both peaks. Because acceptable operation is projected under the highest potential volumes included in the analysis, it is reasonable to conclude that operation will be acceptable under all other scenarios with lower background and/or project-generated volumes. Additional analysis was therefore not performed of each of these other scenarios.

Sight Distance

Anywhere a driver must enter moving traffic, a substantially clear line of sight between that driver and the driver of an approaching vehicle is necessary. Sight distances along Partrick Road at the project driveway were evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distance for driveway approaches are based on stopping sight distance and 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 driveway is evaluated based on stopping sight distance criterion and the approach speed on the major street.

As Partrick Road does not have a posted speed limit in the general vicinity of the project driveway the prevailing *prima facie* speed limit of 55 mph would apply, though considering the winding roadway configuration, most drivers travel at lower speeds. For an assumed design speed of 55 mph, stopping sight distance of 500 feet is recommended.

Based on a review of field conditions, sight distance from the driveway extends approximately 700 feet west for the critical eastbound approach, up to the vertical curve that is on a downward slope approaching the driveway. Sight lines to the east are limited to about 250 feet by the steep grade in the roadway, which is inadequate for the *prima facie* speed limit. To avoid the potential conflict which would occur if a vehicle turned left out of the driveway in front of an oncoming westbound vehicle traveling at a speed greater than 30 mph, access out of the site should be restricted to right turns only. Drivers turning right need only see vehicles coming from their left, and sight distance to the west exceeds the minimum amount recommended.

Finding – Sight distance on Partrick Road from the project driveway is adequate to the west, but inadequate to the east to meet the applied criteria for both entering and exiting movements based on the *prima facie* speed limit.

Recommendation – The applicant should install a right-turn only sign for vehicles exiting the project driveway. Additionally, the applicant should install a “combination curve/side road” (W1-10) sign along the north side of Partrick Road in advance of the project driveway.

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. Because, in addition to the winery, there is one existing home served by the driveway, trips for this residence were estimated using the standard rates for single-family detached housing at 9.44 trips per unit, or nine trips total added to the total of 46 project plus event trips (for a 30-person event) to achieve the driveway volume of 55.

Based on Future plus Project plus 30-person Event volumes, a left-turn lane would not be warranted with the proposed Conditional Use Permit Modification. A copy of the warrant graph is enclosed along with the traffic counts that were collected on Partrick Road near the project driveway for the turn warrant analysis.

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

Parking

The project was analyzed to determine whether the proposed parking supply would be sufficient for the anticipated daily demand during harvest conditions as well as during events. The project site, as proposed, would have 15 standard parking spaces and two accessible parking spaces for a total of 17 permanent parking spaces. It is understood that the crush pad area and unpaved drive aisle shoulders would be used for temporary overflow parking for events.

To accommodate the daily parking demand for the tasting room, there should be at least one space provided for every employee on-site, as well as parking stalls for about 25 percent of the expected daily tasting room visitors (counts performed at numerous wineries in Napa County indicate that the peak visitation typically represents less than 20 percent of the daily volume, so this assumption is slightly conservative). Although tours and tasting would occur by appointment only, for the purpose of the parking analysis it was conservatively assumed that one-quarter of the daily guests could be on site at any one time. During harvest and with a small VIP marketing event in occurrence, there would be six employees and a maximum of 22 visitors per day to the tasting room. Assuming the County’s standard occupancy rate of 2.8 guests per vehicle, a total of eight guest vehicles would visit the site over the course of the day. Therefore, the proposed project would need at least 14 parking spaces, six for employees and eight for guests. The proposed supply of 17 spaces would be more than adequate to accommodate the approximate day-to-day peak demand of 14 spaces.

The maximum number of parking spaces that would be needed on-site to accommodate employees and visitors during a 150-person harvest event was also estimated using the County's standard vehicle occupancies of one employee or 2.8 visitors per vehicle. However, it is noted that the largest events, including the 75-person and 150-person events, would have a "rolling" attendance, meaning that not all attendees would be on-site at the same time. The maximum number of guests that would be at the site simultaneously is anticipated to be 75 percent of the total attendance. Based on these operational parameters, during a 150-person event, a total of 51 parking spaces would be needed, including 40 for guests, five for event staff, and six for winery employees. Therefore, the total permanent parking supply at the winery is insufficient to meet the anticipated parking demand for the largest event, experiencing a shortfall of 34 spaces. The applicant should ensure that the on-site temporary overflow parking can accommodate up to 34 vehicles.

The second largest event would be a 75-person event and would also have a "rolling" attendance. Assuming staffing levels are the same as the largest 150-person event and that a maximum of 75 percent of event attendees would be on-site simultaneously, the parking required for a 75-person event would be 31 spaces, including 20 for guests, five for event staff, and six for winery employees. Therefore, this event would also require an on-site overflow parking supply.

Finally, a 30-person event would require 17 vehicle parking spaces assuming only the six full-time staff are needed (no event staff) and all event attendees would be on-site at the same time. The proposed supply of 17 spaces is adequate to meet the demand for these small events.

Finding – The proposed permanent parking supply is adequate for the anticipated demand during typical harvest operation and 30-person events, but inadequate for 75-person and 150-person events.

Recommendation – The applicant should close the tasting room during 30-, 75-, and 150-person events and allocate the permanent parking supply to event traffic. Also, the applicant should provide on-site overflow parking to accommodate up to 34 additional vehicles.

Conclusions and Recommendations

- The proposed change in visitation, production, and employment levels at the winery would be expected to result in an average of 19 new daily trips at the site on weekdays, including eight trips during the weekday p.m. peak hour and ten trips during the weekend midday peak hour. On Crush Saturdays, the project would be expected to result in eleven new trips during the midday peak hour.
- Under Existing conditions, the easterly intersection of Partrick Road/Browns Valley Road operates acceptably at LOS A overall and LOS B on the minor Browns Valley Road approach during the weekend peak hour and the study segment of Partrick Road operates acceptably at LOS A in both directions during both peak periods.
- Under worst-case Future plus Project plus 150-person Event conditions, which would occur one day of the year, the study intersection of Partrick Road/Browns Valley Road would be expected to continue operating acceptably at LOS A overall and LOS C on the stop-controlled Browns Valley Road approach during the weekend peak hour and the study segment of Partrick Road would be expected to operate acceptably at LOS B or C during both peak periods.
- Stopping sight distance along Partrick Road at the project driveway is adequate to the west, but inadequate to the east to meet the applied criteria for both entering and exiting movements based on the roadway's *prima facie* speed limit.
- A left-turn lane is not warranted on Partrick Road at the project driveway.

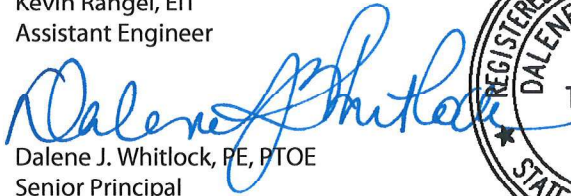
- The proposed parking supply is adequate to accommodate the anticipated peak parking demand during daily conditions and for a 30-person event, but insufficient to accommodate the demand during the proposed 75-person and 150-person events.
- The applicant should restrict existing vehicle movements to right turns only via the installation of a right-turn only sign.
- The applicant should install a "combination curve/side road" (W1-10) sign in advance of the project driveway for vehicles traveling westbound on Partrick Road.
- The tasting room should be closed during 30-, 75-, and 150-person events and the permanent parking supply of 17 spaces should be allocated to event traffic.
- To accommodate the peak parking demand during the largest 150-person event, the applicant should ensure that the on-site temporary overflow parking can accommodate up to 34 vehicles.

Thank you for giving W-Trans the opportunity to provide these services. Please call if you have any questions.

Sincerely,



Kevin Rangel, EIT
Assistant Engineer



Dalene J. Whitlock, PE, PTOE
Senior Principal



DJW/kr/NAX127.L1

Enclosures: Traffic Count Data; Collision Rate Calculation; Winery Traffic Information/Trip Generation Forms;
Level of Service Calculations; Turn Lane Warrants

VOLUME

Patrick Rd & City Limit

Day: Thursday
Date: 10/26/2017

City: Napa
Project #: CA17_7861_002

DAILY TOTALS					NB	SB						Total
					0	0						385
							EB	WB				
							192	193				
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00			0	0	0	12:00			5	6	11	
00:15			0	1	1	12:15			2	5	7	
00:30			1	0	1	12:30			3	4	7	
00:45			0	1	0	12:45			2	12	17	
01:00			0	0	0	13:00			2	2	4	
01:15			1	0	1	13:15			4	3	7	
01:30			0	0	0	13:30			4	5	9	
01:45			0	1	0	13:45			2	12	11	
02:00			0	1	1	14:00			2	5	7	
02:15			0	0	0	14:15			3	2	5	
02:30			0	0	0	14:30			5	6	11	
02:45			0	0	0	14:45			6	16	19	
03:00			0	0	0	15:00			5	5	10	
03:15			0	0	0	15:15			5	4	9	
03:30			0	0	0	15:30			9	9	18	
03:45			1	1	0	15:45			6	25	20	
04:00			1	1	2	16:00			2	3	5	
04:15			0	0	0	16:15			6	5	11	
04:30			1	0	1	16:30			6	4	10	
04:45			0	2	0	16:45			2	16	15	
05:00			0	0	0	17:00			7	1	8	
05:15			0	0	0	17:15			8	4	12	
05:30			1	1	2	17:30			7	1	8	
05:45			1	2	0	17:45			2	24	6	
06:00			1	0	1	18:00			3	1	4	
06:15			1	0	1	18:15			2	3	5	
06:30			0	3	3	18:30			0	1	1	
06:45			2	4	5	18:45			1	6	5	
07:00			2	2	4	19:00			2	1	3	
07:15			2	0	2	19:15			1	3	4	
07:30			1	2	3	19:30			0	0	0	
07:45			1	6	1	19:45			0	3	3	
08:00			4	6	10	20:00			0	1	1	
08:15			1	4	5	20:15			1	2	3	
08:30			2	4	6	20:30			0	0	0	
08:45			0	7	4	20:45			0	1	1	
09:00			2	2	4	21:00			0	1	1	
09:15			2	6	8	21:15			0	1	1	
09:30			8	2	10	21:30			1	0	1	
09:45			4	16	3	21:45			1	2	1	
10:00			2	4	6	22:00			1	3	4	
10:15			2	5	7	22:15			1	3	4	
10:30			5	5	10	22:30			0	0	0	
10:45			4	13	4	22:45			2	4	1	
11:00			2	2	4	23:00			1	2	3	
11:15			6	1	7	23:15			3	0	3	
11:30			3	1	4	23:30			0	2	2	
11:45			3	14	5	23:45			0	4	0	
TOTALS			67	75	142	TOTALS			125	118	243	
SPLIT %			47.2%	52.8%	36.9%	SPLIT %			51.4%	48.6%	63.1%	

DAILY TOTALS					NB	SB						Total
					0	0						385
							EB	WB				
							192	193				
AM Peak Hour			10:30	11:45	11:45	PM Peak Hour			14:45	14:45	14:45	
AM Pk Volume			17	20	33	PM Pk Volume			25	24	49	
Pk Hr Factor			0.708	0.833	0.750	Pk Hr Factor			0.694	0.667	0.681	
7 - 9 Volume	0	0	13	23	36	4 - 6 Volume	0	0	40	21	61	
7 - 9 Peak Hour			07:15	08:00	08:00	4 - 6 Peak Hour			16:45	16:00	16:30	
7 - 9 Pk Volume	0	0	8	18	25	4 - 6 Pk Volume	0	0	24	15	35	
Pk Hr Factor	0.000	0.000	0.500	0.750	0.625	Pk Hr Factor	0.000	0.000	0.750	0.750	0.729	

VOLUME

Patrick Rd & City Limit

Day: Friday
Date: 10/27/2017

City: Napa
Project #: CA17_7861_002

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	194	195	389		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			0	0	0	12:00			1	2	3
00:15			0	0	0	12:15			1	7	8
00:30			0	0	0	12:30			4	3	7
00:45			0	0	0	12:45			5	11	17
01:00			0	0	0	13:00			6	5	11
01:15			0	0	0	13:15			4	5	9
01:30			1	0	1	13:30			5	1	6
01:45			0	1	0	13:45			10	25	4
02:00			0	0	0	14:00			6	5	11
02:15			1	1	2	14:15			7	5	12
02:30			0	0	0	14:30			7	1	8
02:45			0	1	0	14:45			2	22	5
03:00			0	0	0	15:00			4	2	6
03:15			0	0	0	15:15			1	4	5
03:30			0	0	0	15:30			3	5	8
03:45			0	0	0	15:45			2	10	2
04:00			1	1	2	16:00			3	1	4
04:15			0	0	0	16:15			4	2	6
04:30			2	2	4	16:30			3	2	5
04:45			1	4	1	16:45			4	14	5
05:00			1	0	1	17:00			4	2	6
05:15			0	0	0	17:15			1	2	3
05:30			0	0	0	17:30			3	3	6
05:45			0	1	0	17:45			3	11	1
06:00			1	0	1	18:00			2	5	7
06:15			1	1	2	18:15			1	2	3
06:30			0	2	2	18:30			2	1	3
06:45			2	4	8	18:45			2	7	3
07:00			0	1	1	19:00			1	1	2
07:15			2	3	5	19:15			2	1	3
07:30			1	3	4	19:30			1	3	4
07:45			4	7	1	19:45			1	5	1
08:00			1	2	3	20:00			2	2	4
08:15			1	4	5	20:15			2	0	2
08:30			3	3	6	20:30			0	2	2
08:45			3	8	3	20:45			1	5	0
09:00			3	3	6	21:00			0	1	1
09:15			4	2	6	21:15			0	0	0
09:30			2	2	4	21:30			0	3	3
09:45			4	13	7	21:45			1	1	1
10:00			3	4	7	22:00			0	4	4
10:15			6	3	9	22:15			1	0	1
10:30			2	4	6	22:30			0	2	2
10:45			4	15	5	22:45			3	4	2
11:00			4	2	6	23:00			1	0	1
11:15			7	2	9	23:15			0	1	1
11:30			3	3	6	23:30			0	0	0
11:45			8	22	8	23:45			2	3	0
TOTALS			76	81	157	TOTALS			118	114	232
SPLIT %			48.4%	51.6%	40.4%	SPLIT %			50.9%	49.1%	59.6%

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	194	195	389		
AM Peak Hour			11:00	11:30	11:00	PM Peak Hour			13:45	12:15	13:45
AM Pk Volume			22	20	37	PM Pk Volume			30	20	45
Pk Hr Factor			0.688	0.625	0.578	Pk Hr Factor			0.750	0.714	0.804
7 - 9 Volume	0	0	15	20	35	4 - 6 Volume	0	0	25	18	43
7 - 9 Peak Hour			07:45	08:00	08:00	4 - 6 Peak Hour			16:15	16:45	16:15
7 - 9 Pk Volume	0	0	9	12	20	4 - 6 Pk Volume	0	0	15	12	26
Pk Hr Factor	0.000	0.000	0.563	0.750	0.833	Pk Hr Factor	0.000	0.000	0.938	0.600	0.722

VOLUME

Patrick Rd & City Limit

Day: Saturday
Date: 10/28/2017

City: Napa
Project #: CA17_7861_002

DAILY TOTALS					NB	SB						Total	
					0	0						455	
					226		229						
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL		
00:00			0	0	0	12:00			8	8	16		
00:15			0	1	1	12:15			4	3	7		
00:30			1	0	1	12:30			6	4	10		
00:45			0	1	0	12:45			3	21	4	19	
01:00			0	0	0	13:00			7	2	9		
01:15			0	0	0	13:15			7	3	10		
01:30			0	1	1	13:30			3	3	6		
01:45			0	0	0	13:45			5	22	7	15	
02:00			0	0	0	14:00			4	3	7		
02:15			0	0	0	14:15			6	10	16		
02:30			1	1	2	14:30			8	5	13		
02:45			1	2	1	14:45			3	21	4	22	
03:00			0	0	0	15:00			6	6	12		
03:15			1	1	2	15:15			2	5	7		
03:30			2	0	2	15:30			11	3	14		
03:45			0	3	0	15:45			6	25	10	24	
04:00			0	0	0	16:00			6	4	10		
04:15			0	0	0	16:15			1	7	8		
04:30			0	0	0	16:30			3	2	5		
04:45			0	0	0	16:45			5	15	3	16	
05:00			0	0	0	17:00			6	2	8		
05:15			0	0	0	17:15			3	3	6		
05:30			0	0	0	17:30			3	7	10		
05:45			0	0	0	17:45			1	13	1	13	
06:00			1	1	2	18:00			5	3	8		
06:15			0	0	0	18:15			4	8	12		
06:30			1	1	2	18:30			5	1	6		
06:45			2	4	2	18:45			1	15	2	14	
07:00			1	4	5	19:00			1	5	6		
07:15			1	2	3	19:15			1	5	6		
07:30			6	1	7	19:30			0	1	1		
07:45			1	9	3	19:45			1	3	0	11	
08:00			2	3	5	20:00			1	2	3		
08:15			2	4	6	20:15			1	0	1		
08:30			3	3	6	20:30			0	0	0		
08:45			4	11	1	20:45			0	2	3	5	
09:00			1	5	6	21:00			1	2	3		
09:15			3	6	9	21:15			2	2	4		
09:30			3	1	4	21:30			0	3	3		
09:45			1	8	1	21:45			4	7	4	11	
10:00			2	2	4	22:00			3	2	5		
10:15			6	3	9	22:15			4	0	4		
10:30			2	2	4	22:30			2	2	4		
10:45			5	15	5	22:45			5	14	2	6	
11:00			3	3	6	23:00			0	1	1		
11:15			1	7	8	23:15			1	1	2		
11:30			4	2	6	23:30			1	0	1		
11:45			5	13	4	23:45			0	2	0	2	
TOTALS			66	71	137	TOTALS			160	158	318		
SPLIT %			48.2%	51.8%	30.1%	SPLIT %			50.3%	49.7%	69.9%		

DAILY TOTALS					NB	SB						Total	
					0	0						455	
					226		229						
AM Peak Hour			11:45	11:15	11:45	PM Peak Hour			15:00	13:45	15:00		
AM Pk Volume			23	21	42	PM Pk Volume			25	25	49		
Pk Hr Factor			0.719	0.656	0.656	Pk Hr Factor			0.568	0.625	0.766		
7 - 9 Volume	0	0	20	21	41	4 - 6 Volume	0	0	28	29	57		
7 - 9 Peak Hour			07:30	07:45	07:30	4 - 6 Peak Hour			16:30	16:00	16:45		
7 - 9 Pk Volume	0	0	11	13	22	4 - 6 Pk Volume	0	0	17	16	32		
Pk Hr Factor	0.000	0.000	0.458	0.813	0.786	Pk Hr Factor	0.000	0.000	0.708	0.571	0.800		

VOLUME

Patrick Rd & City Limit

Day: Sunday
Date: 10/29/2017

City: Napa
Project #: CA17_7861_002

DAILY TOTALS					NB	SB						Total	
					0	0						347	
							EB	WB					
							174	173					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL		
00:00			0	0	0	12:00			2	2	4		
00:15			0	1	1	12:15			3	4	7		
00:30			2	1	3	12:30			4	3	7		
00:45			0	2	1	3	12:45		1	10	3	12	
01:00			0	1	1	13:00			2	4	6		
01:15			1	0	1	13:15			4	6	10		
01:30			0	0	0	13:30			4	7	11		
01:45			0	1	1	13:45			4	14	5	22	
02:00			0	0	0	14:00			10	3	13		
02:15			1	0	1	14:15			2	5	7		
02:30			0	0	0	14:30			5	7	12		
02:45			0	1	0	14:45			8	25	9	24	
03:00			0	1	1	15:00			7	4	11		
03:15			0	0	0	15:15			6	3	9		
03:30			0	0	0	15:30			4	4	8		
03:45			0	0	0	15:45			1	18	2	13	
04:00			0	1	1	16:00			3	3	6		
04:15			1	1	2	16:15			3	6	9		
04:30			0	0	0	16:30			8	2	10		
04:45			0	1	0	2	16:45		3	17	2	13	
05:00			0	0	0	17:00			5	1	6		
05:15			1	0	1	17:15			4	5	9		
05:30			0	0	0	17:30			2	3	5		
05:45			0	1	0	17:45			2	13	1	10	
06:00			0	0	0	18:00			2	3	5		
06:15			2	0	2	18:15			1	3	4		
06:30			0	1	1	18:30			0	1	1		
06:45			1	3	0	1	18:45		1	4	3	10	
07:00			0	1	1	19:00			2	4	6		
07:15			0	0	0	19:15			1	0	1		
07:30			2	1	3	19:30			1	2	3		
07:45			0	2	2	19:45			0	4	5	11	
08:00			2	0	2	20:00			7	2	9		
08:15			0	1	1	20:15			2	2	4		
08:30			2	1	3	20:30			0	0	0		
08:45			3	7	3	5	20:45		1	10	2	6	
09:00			2	0	2	21:00			2	1	3		
09:15			2	1	3	21:15			2	1	3		
09:30			1	4	5	21:30			0	1	1		
09:45			2	7	3	8	21:45		0	4	1	4	
10:00			2	2	4	22:00			0	2	2		
10:15			2	1	3	22:15			2	1	3		
10:30			3	3	6	22:30			2	2	4		
10:45			4	11	0	6	22:45		0	4	0	5	
11:00			1	1	2	23:00			0	0	0		
11:15			2	4	6	23:15			1	0	1		
11:30			6	5	11	23:30			0	1	1		
11:45			5	14	0	10	23:45		0	1	0	1	
TOTALS			50		42	92	TOTALS		124		131	255	
SPLIT %			54.3%		45.7%	26.5%	SPLIT %		48.6%		51.4%	73.5%	

DAILY TOTALS					NB	SB						Total	
					0	0						347	
							EB	WB					
							174	173					
AM Peak Hour			11:30	11:15	11:30	PM Peak Hour			14:30	14:15	14:00		
AM Pk Volume			16	11	27	PM Pk Volume			26	25	49		
Pk Hr Factor			0.667	0.550	0.614	Pk Hr Factor			0.813	0.694	0.721		
7 - 9 Volume	0	0	9	9	18	4 - 6 Volume	0	0	30	23	53		
7 - 9 Peak Hour			08:00	08:00	08:00	4 - 6 Peak Hour			16:30	16:00	16:00		
7 - 9 Pk Volume	0	0	7	5	12	4 - 6 Pk Volume	0	0	20	13	30		
Pk Hr Factor	0.000	0.000	0.583	0.417	0.500	Pk Hr Factor	0.000	0.000	0.625	0.542	0.750		

Prepared by NDS/ATD
VOLUME
 1721 Patrick Rd

Day: Thursday
 Date: 10/26/2017

City: Napa
 Project #: CA17_7861_001

DAILY TOTALS					NB	SB						Total		
					0	0						253		
							EB	WB						
							126	127						
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			0	1	1	12:00			1	7	8			
00:15			0	1	1	12:15			1	4	5			
00:30			1	0	1	12:30			4	2	6			
00:45			0	1	0	12:45			1	7	14			
01:00			0	0	0	13:00			3	3	6			
01:15			1	0	1	13:15			3	2	5			
01:30			0	0	0	13:30			2	4	6			
01:45			0	1	0	13:45			2	10	10			
02:00			0	1	1	14:00			1	2	3			
02:15			0	0	0	14:15			2	1	3			
02:30			0	0	0	14:30			3	2	5			
02:45			0	0	0	14:45			2	8	3			
03:00			0	0	0	15:00			6	5	11			
03:15			0	0	0	15:15			3	5	8			
03:30			0	0	0	15:30			5	4	9			
03:45			1	1	0	15:45			3	17	2			
04:00			1	0	0	16:00			2	2	4			
04:15			0	0	0	16:15			1	1	2			
04:30			0	0	0	16:30			5	3	8			
04:45			0	1	0	16:45			2	10	5			
05:00			0	0	0	17:00			4	1	5			
05:15			0	0	0	17:15			8	1	9			
05:30			1	1	2	17:30			5	3	8			
05:45			0	1	0	17:45			1	18	0			
06:00			1	0	1	18:00			2	0	2			
06:15			0	0	0	18:15			2	1	3			
06:30			0	2	2	18:30			0	1	1			
06:45			1	2	3	18:45			1	5	0			
07:00			2	0	2	19:00			1	0	1			
07:15			0	0	0	19:15			1	1	2			
07:30			0	2	2	19:30			0	0	0			
07:45			2	4	1	19:45			0	2	1			
08:00			0	3	3	20:00			0	2	2			
08:15			0	4	4	20:15			1	1	2			
08:30			1	4	5	20:30			0	0	0			
08:45			0	1	0	20:45			0	1	0			
09:00			2	1	3	21:00			0	1	1			
09:15			1	3	4	21:15			0	1	1			
09:30			3	1	4	21:30			1	0	1			
09:45			0	6	2	21:45			1	2	0			
10:00			2	2	4	22:00			1	3	4			
10:15			1	4	5	22:15			1	3	4			
10:30			4	4	8	22:30			0	0	0			
10:45			3	10	3	22:45			2	4	1			
11:00			2	0	2	23:00			1	1	2			
11:15			5	0	5	23:15			2	0	2			
11:30			2	0	2	23:30			0	2	2			
11:45			2	11	1	23:45			0	3	0			
TOTALS			39	44	83	TOTALS			87	83	170			
SPLIT %			47.0%	53.0%	32.8%	SPLIT %			51.2%	48.8%	67.2%			

DAILY TOTALS					NB	SB						Total		
					0	0						253		
							EB	WB						
							126	127						
AM Peak Hour			10:30	11:45	10:00	PM Peak Hour			16:30	14:45	14:45			
AM Pk Volume			14	14	23	PM Pk Volume			19	17	33			
Pk Hr Factor			0.700	0.500	0.719	Pk Hr Factor			0.594	0.850	0.750			
7 - 9 Volume	0	0	5	14	19	4 - 6 Volume	0	0	28	16	44			
7 - 9 Peak Hour			07:00	07:45	07:45	4 - 6 Peak Hour			16:30	16:00	16:30			
7 - 9 Pk Volume	0	0	4	12	15	4 - 6 Pk Volume	0	0	19	11	29			
Pk Hr Factor	0.000	0.000	0.500	0.750	0.750	Pk Hr Factor	0.000	0.000	0.594	0.550	0.806			

VOLUME

1721 Patrick Rd

Day: Friday
Date: 10/27/2017

City: Napa
Project #: CA17_7861_001

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	125	122	247

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			0	0	0	12:00			1	1	2
00:15			0	0	0	12:15			0	1	1
00:30			0	0	0	12:30			3	2	5
00:45			0	0	0	12:45			2	6	9
01:00			0	0	0	13:00			4	3	7
01:15			0	0	0	13:15			2	2	4
01:30			0	0	0	13:30			2	2	4
01:45			0	0	0	13:45			9	17	26
02:00			0	0	0	14:00			6	6	12
02:15			0	0	0	14:15			5	4	9
02:30			0	0	0	14:30			6	0	6
02:45			0	0	0	14:45			2	19	21
03:00			0	0	0	15:00			2	1	3
03:15			0	0	0	15:15			0	2	2
03:30			0	0	0	15:30			1	4	5
03:45			0	0	0	15:45			2	5	7
04:00			0	0	0	16:00			0	2	2
04:15			1	1	2	16:15			4	3	7
04:30			1	1	2	16:30			0	1	1
04:45			1	3	4	16:45			0	4	4
05:00			1	1	2	17:00			4	0	4
05:15			0	0	0	17:15			2	2	4
05:30			0	0	0	17:30			2	1	3
05:45			1	2	3	17:45			2	10	12
06:00			0	0	0	18:00			0	3	3
06:15			1	1	2	18:15			1	3	4
06:30			1	0	1	18:30			3	1	4
06:45			0	2	2	18:45			1	5	6
07:00			0	0	0	19:00			2	0	2
07:15			1	1	2	19:15			0	1	1
07:30			1	1	2	19:30			1	0	1
07:45			2	4	6	19:45			1	4	5
08:00			0	0	0	20:00			2	2	4
08:15			0	2	2	20:15			2	0	2
08:30			1	4	5	20:30			1	0	1
08:45			2	3	5	20:45			0	5	5
09:00			3	2	5	21:00			0	1	1
09:15			2	3	5	21:15			0	0	0
09:30			1	1	2	21:30			0	1	1
09:45			1	7	8	21:45			1	1	2
10:00			4	2	6	22:00			0	3	3
10:15			3	4	7	22:15			1	1	2
10:30			2	2	4	22:30			1	1	2
10:45			2	11	13	22:45			2	4	6
11:00			3	1	4	23:00			1	0	1
11:15			4	3	7	23:15			0	0	0
11:30			1	1	2	23:30			0	1	1
11:45			2	10	12	23:45			2	3	5
TOTALS			42	48	90	TOTALS			83	74	157
SPLIT %			46.7%	53.3%	36.4%	SPLIT %			52.9%	47.1%	63.6%

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	125	122	247

AM Peak Hour			10:00	09:45	10:00	PM Peak Hour			13:45	13:30	13:45
AM Pk Volume			11	11	22	PM Pk Volume			26	14	38
Pk Hr Factor			0.688	0.688	0.786	Pk Hr Factor			0.722	0.583	0.792
7 - 9 Volume	0	0	7	9	16	4 - 6 Volume	0	0	14	12	26
7 - 9 Peak Hour			07:00	08:00	08:00	4 - 6 Peak Hour			17:00	16:00	16:15
7 - 9 Pk Volume	0	0	4	7	10	4 - 6 Pk Volume	0	0	10	8	14
Pk Hr Factor	0.000	0.000	0.500	0.438	0.500	Pk Hr Factor	0.000	0.000	0.625	0.667	0.500

VOLUME

1721 Patrick Rd

Day: Saturday
Date: 10/28/2017

City: Napa
Project #: CA17_7861_001

DAILY TOTALS					NB	SB						Total
					0	0						324
							EB	WB				
							161	163				
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00			0	0	0	12:00			7	4	11	
00:15			0	0	0	12:15			2	3	5	
00:30			1	1	2	12:30			6	2	8	
00:45			0	1	0	12:45			1	16	3	
01:00			0	0	0	13:00			8	2	10	
01:15			0	0	0	13:15			2	3	5	
01:30			0	0	0	13:30			3	1	4	
01:45			0	0	0	13:45			2	15	2	
02:00			0	0	0	14:00			4	5	9	
02:15			0	0	0	14:15			5	6	11	
02:30			1	1	2	14:30			3	6	9	
02:45			1	2	0	14:45			3	15	1	
03:00			0	1	1	15:00			3	5	8	
03:15			2	1	3	15:15			5	7	12	
03:30			1	0	1	15:30			6	2	8	
03:45			0	3	0	15:45			3	17	6	
04:00			0	0	0	16:00			2	3	5	
04:15			0	0	0	16:15			1	1	2	
04:30			0	0	0	16:30			2	4	6	
04:45			0	0	0	16:45			4	9	2	
05:00			0	0	0	17:00			4	1	5	
05:15			0	0	0	17:15			2	2	4	
05:30			0	0	0	17:30			3	4	7	
05:45			0	0	0	17:45			2	11	1	
06:00			1	1	2	18:00			1	1	2	
06:15			0	0	0	18:15			5	8	13	
06:30			1	1	2	18:30			3	1	4	
06:45			0	2	0	18:45			1	10	1	
07:00			1	1	2	19:00			1	2	3	
07:15			1	5	6	19:15			1	3	4	
07:30			1	1	2	19:30			0	0	0	
07:45			1	4	2	19:45			1	3	1	
08:00			2	0	2	20:00			0	2	2	
08:15			1	1	2	20:15			1	0	1	
08:30			0	2	2	20:30			0	0	0	
08:45			5	8	2	20:45			0	1	1	
09:00			2	3	5	21:00			1	2	3	
09:15			0	3	3	21:15			1	1	2	
09:30			2	2	4	21:30			0	2	2	
09:45			1	5	0	21:45			2	4	3	
10:00			2	2	4	22:00			3	2	5	
10:15			2	1	3	22:15			4	1	5	
10:30			3	1	4	22:30			3	2	5	
10:45			2	9	6	22:45			4	14	2	
11:00			3	2	5	23:00			0	0	0	
11:15			1	5	6	23:15			1	1	2	
11:30			2	3	5	23:30			1	0	1	
11:45			4	10	3	23:45			0	2	0	
TOTALS			44	51	95	TOTALS			117	112	229	
SPLIT %			46.3%	53.7%	29.3%	SPLIT %			51.1%	48.9%	70.7%	

DAILY TOTALS					NB	SB						Total
					0	0						324
							EB	WB				
							161	163				
AM Peak Hour			11:45	10:45	11:45	PM Peak Hour			12:15	15:00	15:00	
AM Pk Volume			19	16	31	PM Pk Volume			17	20	37	
Pk Hr Factor			0.679	0.667	0.705	Pk Hr Factor			0.531	0.714	0.771	
7 - 9 Volume	0	0	12	14	26	4 - 6 Volume	0	0	20	18	38	
7 - 9 Peak Hour			08:00	07:00	07:00	4 - 6 Peak Hour			16:45	16:00	16:45	
7 - 9 Pk Volume	0	0	8	9	13	4 - 6 Pk Volume	0	0	13	10	22	
Pk Hr Factor	0.000	0.000	0.400	0.450	0.542	Pk Hr Factor	0.000	0.000	0.813	0.625	0.786	

VOLUME

1721 Patrick Rd

Day: Sunday
Date: 10/29/2017

City: Napa
Project #: CA17_7861_001

DAILY TOTALS					NB	SB						Total		
					0	0						232		
							EB	WB						
							120	112						
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			0	0	0	12:00			2	1	3			
00:15			1	1	2	12:15			3	4	7			
00:30			1	0	1	12:30			2	1	3			
00:45			0	2	2	12:45			2	9	11			
01:00			0	1	1	13:00			1	4	5			
01:15			1	0	1	13:15			2	3	5			
01:30			0	0	0	13:30			4	2	6			
01:45			0	1	1	13:45			4	11	15			
02:00			0	0	0	14:00			6	1	7			
02:15			1	0	1	14:15			2	4	6			
02:30			0	0	0	14:30			4	6	10			
02:45			0	1	1	14:45			4	16	20			
03:00			0	1	1	15:00			5	4	9			
03:15			0	0	0	15:15			4	4	8			
03:30			0	0	0	15:30			3	2	5			
03:45			0	0	1	15:45			1	13	14			
04:00			0	0	0	16:00			1	2	3			
04:15			1	2	3	16:15			1	2	3			
04:30			0	0	0	16:30			6	2	8			
04:45			0	1	1	16:45			3	11	14			
05:00			0	0	0	17:00			5	1	6			
05:15			1	0	1	17:15			3	1	4			
05:30			0	0	0	17:30			1	2	3			
05:45			0	1	1	17:45			1	10	11			
06:00			0	0	0	18:00			1	1	2			
06:15			1	0	1	18:15			0	0	0			
06:30			1	0	1	18:30			0	1	1			
06:45			0	2	2	18:45			1	2	3			
07:00			0	0	0	19:00			1	1	2			
07:15			0	0	0	19:15			2	0	2			
07:30			0	0	0	19:30			0	0	0			
07:45			0	1	1	19:45			0	3	3			
08:00			2	1	3	20:00			5	2	7			
08:15			0	0	0	20:15			2	1	3			
08:30			0	0	0	20:30			0	1	1			
08:45			1	3	4	20:45			1	8	9			
09:00			2	0	2	21:00			2	3	5			
09:15			1	0	1	21:15			2	0	2			
09:30			1	2	3	21:30			0	1	1			
09:45			2	6	8	21:45			0	4	4			
10:00			1	0	1	22:00			0	2	2			
10:15			0	1	1	22:15			2	0	2			
10:30			1	2	3	22:30			1	1	2			
10:45			3	5	8	22:45			0	3	3			
11:00			0	0	0	23:00			0	0	0			
11:15			2	3	5	23:15			1	0	1			
11:30			3	3	6	23:30			0	0	0			
11:45			2	7	9	23:45			0	1	1			
TOTALS			29	26	55	TOTALS			91	86	177			
SPLIT %			52.7%	47.3%	23.7%	SPLIT %			51.4%	48.6%	76.3%			

DAILY TOTALS					NB	SB						Total		
					0	0						232		
							EB	WB						
							120	112						
AM Peak Hour			11:30	11:30	11:30	PM Peak Hour			14:30	13:45	13:45			
AM Pk Volume			10	8	18	PM Pk Volume			17	19	35			
Pk Hr Factor			0.833	0.500	0.643	Pk Hr Factor			0.850	0.594	0.729			
7 - 9 Volume	0	0	3	6	9	4 - 6 Volume	0	0	21	13	34			
7 - 9 Peak Hour			08:00	08:00	08:00	4 - 6 Peak Hour			16:30	16:00	16:30			
7 - 9 Pk Volume	0	0	3	5	8	4 - 6 Pk Volume	0	0	17	7	22			
Pk Hr Factor	0.000	0.000	0.375	0.313	0.400	Pk Hr Factor	0.000	0.000	0.708	0.875	0.688			

SEGMENT COLLISION RATE CALCULATIONS

Traffic Impact Study for the Fontanella Winery Project

Location: Patrick Road fronting the Fontanella Winery

Date of Count: Saturday, October 28, 2017

ADT: 320

Number of Collisions: 2

Number of Injuries: 0

Number of Fatalities: 0

Start Date: April 1, 2014

End Date: March 31, 2019

Number of Years: 5

Highway Type: Conventional 2 lanes or less

Area: Rural

Design Speed: ≤55

Terrain: Rolling/Mountain

Segment Length: 2.0 miles

Direction: East/West

$$\frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Segment Length} \times \text{Number of Years}}$$

$$\frac{2 \times 1,000,000}{320 \times 365 \times 2 \times 5}$$

	<u>Collision Rate</u>	<u>Fatality Rate</u>	<u>Injury Rate</u>
Study Segment	1.71 c/mvm	0.0%	0.0%
Statewide Average*	2.22 c/mvm	2.2%	44.8%

ADT = average daily traffic volume

c/mvm = collisions per million vehicle miles

* 2013 Collision Data on California State Highways, Caltrans

Winery Traffic Information / Trip Generation Sheet

Project Name: Fontanella Family Winery

Project Scenario:

Permitted

Traffic during a Typical Weekday

Number of FT employees: <u>3</u> x 3.05 one-way trips per employee	=	<u>9</u>	daily trips.
Number of PT employees: <u>2</u> x 1.90 one-way trips per employee	=	<u>4</u>	daily trips.
Average number of weekday visitors: <u>4</u> / 2.6 visitors per vehicle x 2 one-way trips	=	<u>3</u>	daily trips.
Gallons of production: <u>30000</u> / 1,000 x .009 truck trips daily ³ x 2 one-way trips	=	<u>1</u>	daily trips.
Total	=	<u>17</u>	daily trips.
Number of total weekday trips x .38	=	<u>6</u>	PM peak trips.

Traffic during a Typical Saturday

Number of FT employees (on Saturdays): <u>3</u> x 3.05 one-way trips per employee	=	<u>9</u>	daily trips.
Number of PT employees (on Saturdays): <u>2</u> x 1.90 one-way trips per employee	=	<u>4</u>	daily trips.
Average number of weekend visitors: <u>4</u> / 2.8 visitors per vehicle x 2 one-way trips	=	<u>3</u>	daily trips.
Total	=	<u>16</u>	daily trips.
Number of total Saturday trips x .57	=	<u>9</u>	PM peak trips.

Traffic during a Crush Saturday

Number of FT employees (during crush): <u>3</u> x 3.05 one-way trips per employee	=	<u>9</u>	daily trips.
Number of PT employees (during crush): <u>2</u> x 1.90 one-way trips per employee	=	<u>4</u>	daily trips.
Average number of weekend visitors: <u>2</u> / 2.8 visitors per vehicle x 2 one-way trips	=	<u>1</u>	daily trips.
Gallons of production: <u>30000</u> / 1,000 x .009 truck trips daily x 2 one-way trips	=	<u>1</u>	daily trips.
Avg. annual tons of grape on-haul: <u>190</u> x .11 truck trips daily ⁴ x 2 one-way trips	=	<u>3</u>	daily trips.
Total	=	<u>18</u>	daily trips.
Number of total Saturday trips x .57	=	<u>10</u>	PM peak trips.

Largest Marketing Event- Additional Traffic

Number of event staff (largest event): <u>0</u> x 2 one-way trips per staff person	=	<u>0</u>	trips.
Number of visitors (largest event): <u>0</u> / 2.8 visitors per vehicle x 2 one-way trips	=	<u>0</u>	trips.
Number of special event truck trips (largest event): <u>0</u> x 2 one-way trips	=	<u>0</u>	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: Fontanella Family Winery

Project Scenario:

Proposed

Traffic during a Typical Weekday

Number of FT employees: <u>6</u> x 3.05 one-way trips per employee	=	<u>18</u>	daily trips.
Number of PT employees: <u>0</u> x 1.90 one-way trips per employee	=	<u>0</u>	daily trips.
Average number of weekday visitors: <u>22</u> / 2.6 visitors per vehicle x 2 one-way trips	=	<u>17</u>	daily trips.
Gallons of production: <u>30000</u> / 1,000 x .009 truck trips daily ³ x 2 one-way trips	=	<u>1</u>	daily trips.
Total	=	<u>36</u>	daily trips.
Number of total weekday trips x .38	=	<u>14</u>	PM peak trips.

Traffic during a Typical Saturday

Number of FT employees (on Saturdays): <u>6</u> x 3.05 one-way trips per employee	=	<u>18</u>	daily trips.
Number of PT employees (on Saturdays): <u>0</u> x 1.90 one-way trips per employee	=	<u>0</u>	daily trips.
Average number of weekend visitors: <u>22</u> / 2.8 visitors per vehicle x 2 one-way trips	=	<u>16</u>	daily trips.
Total	=	<u>34</u>	daily trips.
Number of total Saturday trips x .57	=	<u>19</u>	PM peak trips.

Traffic during a Crush Saturday

Number of FT employees (during crush): <u>6</u> x 3.05 one-way trips per employee	=	<u>18</u>	daily trips.
Number of PT employees (during crush): <u>0</u> x 1.90 one-way trips per employee	=	<u>0</u>	daily trips.
Average number of weekend visitors: <u>22</u> / 2.8 visitors per vehicle x 2 one-way trips	=	<u>16</u>	daily trips.
Gallons of production: <u>30000</u> / 1,000 x .009 truck trips daily x 2 one-way trips	=	<u>1</u>	daily trips.
Avg. annual tons of grape on-haul: <u>190</u> x .11 truck trips daily ⁴ x 2 one-way trips	=	<u>3</u>	daily trips.
Total	=	<u>37</u>	daily trips.
Number of total Saturday trips x .57	=	<u>21</u>	PM peak trips.

Largest Marketing Event- Additional Traffic

Number of event staff (largest event): <u>5</u> x 2 one-way trips per staff person	=	<u>10</u>	trips.
Number of visitors (largest event): <u>150</u> / 2.8 visitors per vehicle x 2 one-way trips	=	<u>107</u>	trips.
Number of special event truck trips (largest event): <u>3</u> x 2 one-way trips	=	<u>6</u>	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).

Intersection Level Of Service Report

Intersection 1: Patrick Rd/Browns Valley Road

Control Type:	Two-way stop	Delay (sec / veh):	16,2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0,006

Intersection Setup

Name	Brown Valley Rd		Patrick Rd		Patrick Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
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	0	1	0
Pocket Length [ft]	100,00	100,00	100,00	100,00	170,00	100,00
Speed [mph]	25,00		35,00		35,00	
Grade [%]	0,00		0,00		0,00	
Crosswalk	No		Yes		No	

Volumes

Name	Brown Valley Rd		Patrick Rd		Patrick Rd	
Base Volume Input [veh/h]	2	156	131	5	166	136
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]	2	156	131	5	166	136
Peak Hour Factor	0,8700	0,8700	0,8700	0,8700	0,8700	0,8700
Other Adjustment Factor	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Total 15-Minute Volume [veh/h]	1	45	38	1	46	39
Total Analysis Volume [veh/h]	2	179	151	6	191	156
Pedestrian Volume [ped/h]	0	0	0	0	0	0

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0,01	0,20	0,00	0,00	0,13	0,00
d_M Delay for Movement [s/veh]	16,21	10,10	0,00	0,00	7,92	0,00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh]	0,77	0,77	0,00	0,00	0,46	0,00
95th-Percentile Queue Length [ft]	19,33	19,33	0,00	0,00	11,59	0,00
d_A Approach Delay [s/veh]	10,17		0,00		4,36	
Approach LOS	B		A		A	
d_I Intersection Delay [s/veh]	4,90					
Intersection LOS	C					

Intersection Level Of Service Report

Intersection 1: Patrick Road/Browns Valley Road

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes
 Delay (sec / veh): 47,7
 Level Of Service: E
 Volume to Capacity (v/c): 0,051

Intersection Setup

Name	Brown Valley Rd		Patrick Rd		Browns Valley Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
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	0	1	0
Pocket Length [ft]	100,00	100,00	100,00	100,00	170,00	100,00
Speed [mph]	25,00		35,00		35,00	
Grade [%]	0,00		0,00		0,00	
Crosswalk	No		Yes		No	

Volumes

Name	Brown Valley Rd		Patrick Rd		Browns Valley Road	
Base Volume Input [veh/h]	2	156	131	5	168	136
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 Factor	2,0000	2,0000	2,0000	2,0000	2,0000	2,0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	6	0	0	59
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]	4	312	268	10	332	331
Peak Hour Factor	0,8700	0,8700	0,8700	0,8700	0,8700	0,8700
Other Adjustment Factor	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Total 15-Minute Volume [veh/h]	1	90	77	3	95	95
Total Analysis Volume [veh/h]	5	359	308	11	362	380
Pedestrian Volume [ped/h]	0	0	0	0	0	0

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0,05	0,49	0,00	0,00	0,21	0,00
d_M Delay for Movement [s/veh]	47,70	16,20	0,00	0,00	6,19	0,00
Movement LOS	E	C	A	A	A	A
95th-Percentile Queue Length [veh]	3,30	3,30	0,00	0,00	1,32	0,00
95th-Percentile Queue Length [ft]	82,52	82,52	0,00	0,00	32,95	0,00
d_A Approach Delay [s/veh]	16,64		0,00		4,80	
Approach LOS	C		A		A	
d_I Intersection Delay [s/veh]				6,62		
Intersection LOS				E		

EB Weekday PM Existing.txt
HCS 2010: Two-Lane Highways Release 6.80

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst Kevin Rangel
Agency/Co. W-Trans
Date Performed 5/24/2019
Analysis Time Period Existing PM Peak
Highway Partrick Road - EB
From/To Project Driveway/City Limits
Jurisdiction County of Napa
Analysis Year 2019
Description TIS for the Fontanella winery

Input Data

Highway Class	Class 2	Peak hour factor, PHF	0.68
Shoulder width	0.0 ft	% Trucks and buses	6 %
Lane width	11.0 ft	% Trucks crawling	0.0 %
Segment length	1.6 mi	Truck crawl speed	0.0 mi/hr
Terrain type	Rolling	% Recreational vehicles	4 %
Grade: Length	- mi	% No-passing zones	100 %
Up/down	- %	Access point density	15 /mi

Analysis direction volume, Vd 25 veh/h
Opposing direction volume, Vo 20 veh/h

Average Travel Speed

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	2.7	2.7
PCE for RVs, ER	1.1	1.1
Heavy-vehicle adj. factor,(note-5) fhv	0.904	0.904
Grade adj. factor,(note-1) fg	0.67	0.67
Directional flow rate,(note-2) vi	61 pc/h	49 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed,(note-3) S FM - mi/h
Observed total demand,(note-3) V - veh/h
Estimated Free-Flow Speed:
Base Free-Flow Speed,(note-3) BFFS 45.0 mi/h
Adj. for lane and shoulder width,(note-3) fLS 4.7 mi/h
Adj. for access point density,(note-3) FA 3.8 mi/h
Free-Flow speed, FFSd 36.5 mi/h
Adjustment for no-passing zones, fnp 2.4 mi/h
Average travel speed, ATSD 33.3 mi/h
Percent Free Flow Speed, PFFS 91.1 %

Percent Time-Spent-Following
Page 1

EB Weekday PM Existing.txt

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.9	1.9
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fhv	0.949	0.949
Grade adjustment factor,(note-1) fg	0.73	0.73
Directional flow rate,(note-2) vi	53 pc/h	42 pc/h
Base percent time-spent-following,(note-4) BPTSFD	6.4 %	53.1 %
Adjustment for no-passing zones, fnp		
Percent time-spent-following, PTSFD	36.0 %	

Level of Service and Other Performance Measures

Level of service, LOS	A
Volume to capacity ratio, v/c	0.03
Peak 15-min vehicle-miles of travel, VMT15	15 veh-mi
Peak-hour vehicle-miles of travel, VMT60	40 veh-mi
Peak 15-min total travel time, TT15	0.5 veh-h
Capacity from ATS, CdATS	1030 veh/h
Capacity from PTSF, CdPTSF	1177 veh/h
Directional Capacity	1177 veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6 mi
Length of two-lane highway upstream of the passing lane, Lu	- mi
Length of passing lane including tapers, Lpl	- mi
Average travel speed, ATSD (from above)	33.3 mi/h
Percent time-spent-following, PTSFD (from above)	36.0 %
Level of service, LOSd (from above)	A

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	- mi
Adj. factor for the effect of passing lane on average speed, fpl	-
Average travel speed including passing lane, ATSp1	-
Percent free flow speed including passing lane, PFFSp1	0.0 %

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	- mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-
Percent time-spent-following including passing lane, PTSFp1	- %

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSp1	A
Peak 15-min total travel time, TT15	- veh-h

Bicycle Level of Service

Posted speed limit, Sp	30
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3

WB Weekday PM Existing.txt
HCS 2010: Two-Lane Highways Release 6.80

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst Kevin Rangel
Agency/Co. W-Trans
Date Performed 5/24/2019
Analysis Time Period Existing PM Peak
Highway Partrick Road - WB
From/To Project Driveway/City Limits
Jurisdiction County of Napa
Analysis Year 2019
Description TIS for the Fontanella winery

Input Data

Highway Class	Class 2	Peak hour factor, PHF	0.68
Shoulder width	0.0 ft	% Trucks and buses	6 %
Lane width	11.0 ft	% Trucks crawling	0.0 %
Segment length	1.6 mi	Truck crawl speed	0.0 mi/hr
Terrain type	Rolling	% Recreational vehicles	4 %
Grade: Length	- mi	% No-passing zones	100 %
Up/down	- %	Access point density	15 /mi

Analysis direction volume, Vd 20 veh/h
Opposing direction volume, Vo 25 veh/h

Average Travel Speed

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	2.7	2.7
PCE for RVs, ER	1.1	1.1
Heavy-vehicle adj. factor,(note-5) fhv	0.904	0.904
Grade adj. factor,(note-1) fg	0.67	0.67
Directional flow rate,(note-2) vi	49 pc/h	61 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed,(note-3) S FM - mi/h
Observed total demand,(note-3) V - veh/h
Estimated Free-Flow Speed:
Base Free-Flow speed,(note-3) BFFS 45.0 mi/h
Adj. for lane and shoulder width,(note-3) fLS 4.7 mi/h
Adj. for access point density,(note-3) FA 3.8 mi/h
Free-Flow speed, FFSd 36.5 mi/h
Adjustment for no-passing zones, fnp 2.4 mi/h
Average travel speed, ATSD 33.3 mi/h
Percent Free Flow Speed, PFFS 91.1 %

Percent Time-Spent-Following
Page 1

WB Weekday PM Existing.txt

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.9	1.9
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fhv	0.949	0.949
Grade adjustment factor,(note-1) fg	0.73	0.73
Directional flow rate,(note-2) vi	42 pc/h	53 pc/h
Base percent time-spent-following,(note-4) BPTSFD	5.2 %	
Adjustment for no-passing zones, fnp		
Percent time-spent-following, PTSFD	28.7 %	

Level of Service and Other Performance Measures

Level of service, LOS	A
Volume to capacity ratio, v/c	0.02
Peak 15-min vehicle-miles of travel, VMT15	12 veh-mi
Peak-hour vehicle-miles of travel, VMT60	32 veh-mi
Peak 15-min total travel time, TT15	0.4 veh-h
Capacity from ATS, CdATS	1030 veh/h
Capacity from PTSF, CdPTSF	1177 veh/h
Directional Capacity	1177 veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6 mi
Length of two-lane highway upstream of the passing lane, Lu	- mi
Length of passing lane including tapers, Lpl	- mi
Average travel speed, ATSD (from above)	33.3 mi/h
Percent time-spent-following, PTSFD (from above)	28.7 %
Level of service, LOSd (from above)	A

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	- mi
Adj. factor for the effect of passing lane on average speed, fpl	-
Average travel speed including passing lane, ATSp1	-
Percent free flow speed including passing lane, PFFSp1	0.0 %

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	- mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-
Percent time-spent-following including passing lane, PTSFp1	- %

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSp1	A
Peak 15-min total travel time, TT15	- veh-h

Bicycle Level of Service

Posted speed limit, Sp	30
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3

EB Weekend PM Existing.txt
HCS 2010: Two-Lane Highways Release 6.80

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst Kevin Rangel
Agency/Co. W-Trans
Date Performed 5/24/2019
Analysis Time Period Existing wknd Peak
Highway Partrick Road - EB
From/To Project Driveway/City Limits
Jurisdiction County of Napa
Analysis Year 2019
Description TIS for the Fontanella winery

Input Data

Highway Class	Class 2	Peak hour factor, PHF	0.68
Shoulder width	0.0 ft	% Trucks and buses	6 %
Lane width	11.0 ft	% Trucks crawling	0.0 %
Segment length	1.6 mi	Truck crawl speed	0.0 mi/hr
Terrain type	Rolling	% Recreational vehicles	4 %
Grade: Length	- mi	% No-passing zones	100 %
Up/down	-	Access point density	15 /mi

Analysis direction volume, Vd 25 veh/h
Opposing direction volume, Vo 24 veh/h

Average Travel Speed

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	2.7	2.7
PCE for RVs, ER	1.1	1.1
Heavy-vehicle adj. factor,(note-5) fhv	0.904	0.904
Grade adj. factor,(note-1) fg	0.67	0.67
Directional flow rate,(note-2) vi	61 pc/h	58 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed,(note-3) S FM - mi/h
Observed total demand,(note-3) V - veh/h
Estimated Free-Flow Speed:
Base Free-Flow Speed,(note-3) BFFS 45.0 mi/h
Adj. for lane and shoulder width,(note-3) fLS 4.7 mi/h
Adj. for access point density,(note-3) FA 3.8 mi/h
Free-Flow speed, FFSd 36.5 mi/h
Adjustment for no-passing zones, fnp 2.4 mi/h
Average travel speed, ATSD 33.2 mi/h
Percent Free Flow Speed, PFFS 90.9 %

Percent Time-Spent-Following
Page 1

EB Weekend PM Existing.txt

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.9	1.9
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fhv	0.949	0.949
Grade adjustment factor,(note-1) fg	0.73	0.73
Directional flow rate,(note-2) vi	53 pc/h	51 pc/h
Base percent time-spent-following,(note-4) BPTSFD	6.4 %	5.7 %
Adjustment for no-passing zones, fnp	52.7 %	52.7 %
Percent time-spent-following, PTSFD	33.3 %	33.3 %

Level of Service and Other Performance Measures

Level of service, LOS	A
Volume to capacity ratio, v/c	0.03
Peak 15-min vehicle-miles of travel, VMT15	15 veh-mi
Peak-hour vehicle-miles of travel, VMT60	40 veh-mi
Peak 15-min total travel time, TT15	0.5 veh-h
Capacity from ATS, CdATS	1030 veh/h
Capacity from PTSF, CdPTSF	1177 veh/h
Directional Capacity	1177 veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6 mi
Length of two-lane highway upstream of the passing lane, Lu	- mi
Length of passing lane including tapers, Lpl	- mi
Average travel speed, ATSD (from above)	33.2 mi/h
Percent time-spent-following, PTSFD (from above)	33.3 %
Level of service, LOSd (from above)	A

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	- mi
Adj. factor for the effect of passing lane on average speed, fpl	-
Average travel speed including passing lane, ATSp1	-
Percent free flow speed including passing lane, PFFSp1	0.0 %

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	- mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-
Percent time-spent-following including passing lane, PTSFp1	- %

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSp1	A
Peak 15-min total travel time, TT15	- veh-h

Bicycle Level of Service

Posted speed limit, Sp	30
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3

WB Weekend PM Existing.txt
HCS 2010: Two-Lane Highways Release 6.80

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst Kevin Rangel
Agency/Co. W-Trans
Date Performed 5/24/2019
Analysis Time Period Existing wknd Peak
Highway Partrick Road - WB
From/To Project Driveway/City Limits
Jurisdiction County of Napa
Analysis Year 2019
Description TIS for the Fontanella winery

Input Data

Highway Class	Class 2	Peak hour factor, PHF	0.68
Shoulder width	0.0 ft	% Trucks and buses	6 %
Lane width	11.0 ft	% Trucks crawling	0.0 %
Segment length	1.6 mi	Truck crawl speed	0.0 mi/hr
Terrain type	Rolling	% Recreational vehicles	4 %
Grade: Length	- mi	% No-passing zones	100 %
Up/down	- %	Access point density	15 /mi

Analysis direction volume, Vd 25 veh/h
Opposing direction volume, Vo 24 veh/h

Average Travel Speed

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	2.7	2.7
PCE for RVs, ER	1.1	1.1
Heavy-vehicle adj. factor,(note-5) fhv	0.904	0.904
Grade adj. factor,(note-1) fg	0.67	0.67
Directional flow rate,(note-2) vi	61 pc/h	58 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed,(note-3) S FM - mi/h
Observed total demand,(note-3) V - veh/h
Estimated Free-Flow Speed:
Base Free-Flow Speed,(note-3) BFFS 45.0 mi/h
Adj. for lane and shoulder width,(note-3) fLS 4.7 mi/h
Adj. for access point density,(note-3) FA 3.8 mi/h
Free-Flow speed, FFSd 36.5 mi/h
Adjustment for no-passing zones, fnp 2.4 mi/h
Average travel speed, ATSD 33.2 mi/h
Percent Free Flow Speed, PFFS 90.9 %

Percent Time-Spent-Following
Page 1

WB Weekend PM Existing.txt

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.9	1.9
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fhv	0.949	0.949
Grade adjustment factor,(note-1) fg	0.73	0.73
Directional flow rate,(note-2) vi	53 pc/h	51 pc/h
Base percent time-spent-following,(note-4) BPTSFD	6.4 %	5.7 %
Adjustment for no-passing zones, fnp	52.7 %	52.7 %
Percent time-spent-following, PTSFD	33.3 %	33.3 %

Level of Service and Other Performance Measures

Level of service, LOS	A
Volume to capacity ratio, v/c	0.03
Peak 15-min vehicle-miles of travel, VMT15	15 veh-mi
Peak-hour vehicle-miles of travel, VMT60	40 veh-mi
Peak 15-min total travel time, TT15	0.5 veh-h
Capacity from ATS, CdATS	1030 veh/h
Capacity from PTSF, CdPTSF	1177 veh/h
Directional Capacity	1177 veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6 mi
Length of two-lane highway upstream of the passing lane, Lu	- mi
Length of passing lane including tapers, Lpl	- mi
Average travel speed, ATSD (from above)	33.2 mi/h
Percent time-spent-following, PTSFD (from above)	33.3 %
Level of service, LOSd (from above)	A

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	- mi
Adj. factor for the effect of passing lane on average speed, fpl	-
Average travel speed including passing lane, ATSp1	-
Percent free flow speed including passing lane, PFFSp1	0.0 %

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	- mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-
Percent time-spent-following including passing lane, PTSFp1	- %

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSp1	A
Peak 15-min total travel time, TT15	- veh-h

Bicycle Level of Service

Posted speed limit, Sp	30
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3

EB PM Future + Project + Event.txt
HCS 2010: Two-Lane Highways Release 6.80

EB PM Future + Project + Event.txt

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst Kevin Rangel
Agency/Co. W-Trans
Date Performed 5/24/2019
Analysis Time Period PM Future + Project + Event
Highway Partrick Road - EB
From/To Project Driveway/City Limits
Jurisdiction County of Napa
Analysis Year 2019
Description TIS for the Fontanella winery

Input Data

Highway Class	Class 2	Peak hour factor, PHF	0.68
Shoulder width	0.0 ft	% Trucks and buses	6 %
Lane width	11.0 ft	% Trucks crawling	0.0 %
Segment length	1.6 mi	Truck crawl speed	0.0 mi/hr
Terrain type	Rolling	% Recreational vehicles	4 %
Grade: Length	- mi	% No-passing zones	100 %
Up/down	-	Access point density	15 /mi

Analysis direction volume, Vd 80 veh/h
Opposing direction volume, Vo 117 veh/h

Average Travel Speed

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	2.6	2.4
PCE for RVs, ER	1.1	1.1
Heavy-vehicle adj. factor,(note-5) fhv	0.909	0.919
Grade adj. factor,(note-1) fg	0.68	0.73
Directional flow rate,(note-2) vi	190 pc/h	256 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed,(note-3) S FM - mi/h
Observed total demand,(note-3) V - veh/h
Estimated Free-Flow Speed:
Base Free-Flow speed,(note-3) BFFS 45.0 mi/h
Adj. for lane and shoulder width,(note-3) fLS 4.7 mi/h
Adj. for access point density,(note-3) FA 3.8 mi/h
Free-Flow speed, FFSd 36.5 mi/h
Adjustment for no-passing zones, fnp 3.6 mi/h
Average travel speed, ATSD 29.5 mi/h
Percent Free Flow Speed, PFFS 80.6 %

Percent Time-Spent-Following
Page 1

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.8	1.8
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fhv	0.954	0.954
Grade adjustment factor,(note-1) fg	0.74	0.78
Directional flow rate,(note-2) vi	167 pc/h	231 pc/h
Base percent time-spent-following,(note-4) BPTSFd	18.9 %	
Adjustment for no-passing zones, fnp	56.8 %	
Percent time-spent-following, PTFSd	42.7 %	

Level of Service and Other Performance Measures

Level of service, LOS	B
Volume to capacity ratio, v/c	0.10
Peak 15-min vehicle-miles of travel, VMT15	47 veh-mi
Peak-hour vehicle-miles of travel, VMT60	128 veh-mi
Peak 15-min total travel time, TT15	1.6 veh-h
Capacity from ATS, CdATS	1216 veh/h
Capacity from PTF, CdPTSF	1338 veh/h
Directional Capacity	1338 veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6 mi
Length of two-lane highway upstream of the passing lane, Lu	- mi
Length of passing lane including tapers, Lpl	- mi
Average travel speed, ATSD (from above)	29.5 mi/h
Percent time-spent-following, PTFSd (from above)	42.7 %
Level of service, LOSd (from above)	B

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	- mi
Adj. factor for the effect of passing lane on average speed, fpl	-
Average travel speed including passing lane, ATSp1	-
Percent free flow speed including passing lane, PFFSp1	0.0 %

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	- mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-
Percent time-spent-following including passing lane, PTFSp1	- %

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSp1	A
Peak 15-min total travel time, TT15	- veh-h

Bicycle Level of Service

Posted speed limit, Sp	30
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3

WB PM Future + Project + Event.txt
HCS 2010: Two-Lane Highways Release 6.80

WB PM Future + Project + Event.txt

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst Kevin Rangel
Agency/Co. W-Trans
Date Performed 5/24/2019
Analysis Time Period PM Future + Project + Event
Highway Partrick Road - WB
From/To Project Driveway/City Limits
Jurisdiction County of Napa
Analysis Year 2019
Description TIS for the Fontanella winery

Input Data

Highway Class	Class 2	Peak hour factor, PHF	0.68
Shoulder width	0.0 ft	% Trucks and buses	6 %
Lane width	11.0 ft	% Trucks crawling	0.0 %
Segment length	1.6 mi	Truck crawl speed	0.0 mi/hr
Terrain type	Rolling	% Recreational vehicles	4 %
Grade: Length	- mi	% No-passing zones	100 %
Up/down	- %	Access point density	15 /mi

Analysis direction volume, Vd 117 veh/h
Opposing direction volume, Vo 80 veh/h

Average Travel Speed

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	2.4	2.6
PCE for RVs, ER	1.1	1.1
Heavy-vehicle adj. factor,(note-5) fhv	0.919	0.909
Grade adj. factor,(note-1) fg	0.73	0.68
Directional flow rate,(note-2) vi	256 pc/h	190 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed,(note-3) S FM - mi/h
Observed total demand,(note-3) V - veh/h
Estimated Free-Flow Speed:
Base Free-Flow speed,(note-3) BFFS 45.0 mi/h
Adj. for lane and shoulder width,(note-3) fLS 4.7 mi/h
Adj. for access point density,(note-3) FA 3.8 mi/h
Free-Flow speed, FFSd 36.5 mi/h
Adjustment for no-passing zones, fnp 3.8 mi/h
Average travel speed, ATSD 29.2 mi/h
Percent Free Flow Speed, PFFS 80.0 %

Percent Time-Spent-Following
Page 1

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.8	1.8
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fhv	0.954	0.954
Grade adjustment factor,(note-1) fg	0.78	0.74
Directional flow rate,(note-2) vi	231 pc/h	167 pc/h
Base percent time-spent-following,(note-4) BPTSFD	24.4 %	
Adjustment for no-passing zones, fnp	56.8 %	
Percent time-spent-following, PTSFD	57.4 %	

Level of Service and Other Performance Measures

Level of service, LOS	C
Volume to capacity ratio, v/c	0.14
Peak 15-min vehicle-miles of travel, VMT15	69 veh-mi
Peak-hour vehicle-miles of travel, VMT60	187 veh-mi
Peak 15-min total travel time, TT15	2.4 veh-h
Capacity from ATS, CdATS	0 veh/h
Capacity from PTSF, CdPTSF	1265 veh/h
Directional Capacity	1265 veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6 mi
Length of two-lane highway upstream of the passing lane, Lu	- mi
Length of passing lane including tapers, Lpl	- mi
Average travel speed, ATSD (from above)	29.2 mi/h
Percent time-spent-following, PTSFD (from above)	57.4 %
Level of service, LOSd (from above)	C

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	- mi
Adj. factor for the effect of passing lane on average speed, fpl	-
Average travel speed including passing lane, ATSp1	-
Percent free flow speed including passing lane, PFFSp1	0.0 %

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	- mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-
Percent time-spent-following including passing lane, PTSFp1	- %

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSp1	A
Peak 15-min total travel time, TT15	- veh-h

Bicycle Level of Service

Posted speed limit, Sp	30
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3

EB Wknd Future + Project + Event.txt
HCS 2010: Two-Lane Highways Release 6.80

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst Kevin Rangel
Agency/Co. W-Trans
Date Performed 5/24/2019
Analysis Time Period Wknd Future + Project + Event
Highway Partrick Road - EB
From/To Project Driveway/City Limits
Jurisdiction County of Napa
Analysis Year 2019
Description TIS for the Fontanella winery

Input Data

Highway Class	Class 2	Peak hour factor, PHF	0.68
Shoulder width	0.0 ft	% Trucks and buses	6 %
Lane width	11.0 ft	% Trucks crawling	0.0 %
Segment length	1.6 mi	Truck crawl speed	0.0 mi/hr
Terrain type	Rolling	% Recreational vehicles	4 %
Grade: Length	- mi	% No-passing zones	100 %
Up/down	-	Access point density	15 /mi

Analysis direction volume, Vd 81 veh/h
Opposing direction volume, Vo 131 veh/h

Average Travel Speed

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	2.6	2.3
PCE for RVs, ER	1.1	1.1
Heavy-vehicle adj. factor,(note-5) fhv	0.909	0.924
Grade adj. factor,(note-1) fg	0.69	0.74
Directional flow rate,(note-2) vi	190 pc/h	282 pc/h

Free-Flow Speed from Field Measurement:
Field measured speed,(note-3) S FM - mi/h
Observed total demand,(note-3) V - veh/h
Estimated Free-Flow Speed:
Base Free-Flow speed,(note-3) BFFS 45.0 mi/h
Adj. for lane and shoulder width,(note-3) fLS 4.7 mi/h
Adj. for access point density,(note-3) fA 3.8 mi/h
Free-Flow speed, FFSd 36.5 mi/h
Adjustment for no-passing zones, fnp 3.5 mi/h
Average travel speed, ATSD 29.4 mi/h
Percent Free Flow Speed, PFFS 80.5 %

Percent Time-Spent-Following
Page 1

EB Wknd Future + Project + Event.txt

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.8	1.8
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fhv	0.954	0.954
Grade adjustment factor,(note-1) fg	0.74	0.80
Directional flow rate,(note-2) vi	169 pc/h	252 pc/h
Base percent time-spent-following,(note-4) BPTSFd	19.8 %	
Adjustment for no-passing zones, fnp		
Percent time-spent-following, PTFSd	41.8 %	

Level of Service and Other Performance Measures

Level of service, LOS	B
Volume to capacity ratio, v/c	0.10
Peak 15-min vehicle-miles of travel, VMT15	48 veh-mi
Peak-hour vehicle-miles of travel, VMT60	130 veh-mi
Peak 15-min total travel time, TT15	1.6 veh-h
Capacity from ATS, CdATS	1248 veh/h
Capacity from PTF, CdPTSF	1354 veh/h
Directional Capacity	1354 veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	1.6 mi
Length of two-lane highway upstream of the passing lane, Lu	- mi
Length of passing lane including tapers, Lpl	- mi
Average travel speed, ATSD (from above)	29.4 mi/h
Percent time-spent-following, PTFSd (from above)	41.8 %
Level of service, LOSd (from above)	B

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	- mi
Adj. factor for the effect of passing lane on average speed, fpl	-
Average travel speed including passing lane, ATSp1	-
Percent free flow speed including passing lane, PFFSp1	0.0 %

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	- mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-
Percent time-spent-following including passing lane, PTFSp1	- %

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSp1	A
Peak 15-min total travel time, TT15	- veh-h

Bicycle Level of Service

Posted speed limit, Sp	30
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3

WB Wknd Future + Project + Event.txt
HCS 2010: Two-Lane Highways Release 6.80

WB Wknd Future + Project + Event.txt

Phone: Fax:
E-Mail:

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.8	1.8
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fhv	0.954	0.954
Grade adjustment factor, (note-1) fg	0.80	0.74
Directional flow rate, (note-2) vi	252 pc/h	169 pc/h
Base percent time-spent-following, (note-4) BPTSFD	26.2 %	
Adjustment for no-passing zones, fnp	54.8 %	
Percent time-spent-following, PTSFD	59.0 %	

Directional Two-Lane Highway Segment Analysis

Analyst Kevin Rangel
Agency/Co. W-Trans
Date Performed 5/24/2019
Analysis Time Period Wknd Future + Project + Event
Highway Partrick Road - WB
From/To Project Driveway/City Limits
Jurisdiction County of Napa
Analysis Year 2019
Description TIS for the Fontanella winery

Level of Service and Other Performance Measures

Level of service, LOS	C
Volume to capacity ratio, v/c	0.15
Peak 15-min vehicle-miles of travel, VMT15	77 veh-mi
Peak-hour vehicle-miles of travel, VMT60	210 veh-mi
Peak 15-min total travel time, TT15	2.7 veh-h
Capacity from ATS, CdATS	0 veh/h
Capacity from PTSF, CdPTSF	1265 veh/h
Directional Capacity	1265 veh/h

Input Data

Highway Class	Class 2	Peak hour factor, PHF	0.68
Shoulder width	0.0 ft	% Trucks and buses	6 %
Lane width	11.0 ft	% Trucks crawling	0.0 %
Segment length	1.6 mi	Truck crawl speed	0.0 mi/hr
Terrain type	Rolling	% Recreational vehicles	4 %
Grade: Length	- mi	% No-passing zones	100 %
Up/down	- %	Access point density	15 /mi

Passing Lane Analysis

Total length of analysis segment, Lt	1.6 mi
Length of two-lane highway upstream of the passing lane, Lu	- mi
Length of passing lane including tapers, Lpl	- mi
Average travel speed, ATSD (from above)	29.0 mi/h
Percent time-spent-following, PTSFD (from above)	59.0 %
Level of service, LOSd (from above)	C

Analysis direction volume, vd 131 veh/h
Opposing direction volume, vo 81 veh/h

Average Travel Speed

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	- mi
Adj. factor for the effect of passing lane on average speed, fpl	-
Average travel speed including passing lane, ATSp1	-
Percent free flow speed including passing lane, PFFSp1	0.0 %

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	2.3	2.6
PCE for RVs, ER	1.1	1.1
Heavy-vehicle adj. factor, (note-5) fhv	0.924	0.909
Grade adj. factor, (note-1) fg	0.74	0.69
Directional flow rate, (note-2) vi	282 pc/h	190 pc/h

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	- mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	- mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-
Percent time-spent-following including passing lane, PTSFp1	- %

Free-Flow Speed from Field Measurement:	
Field measured speed, (note-3) S FM	- mi/h
Observed total demand, (note-3) v	- veh/h
Estimated Free-Flow Speed:	
Base Free-Flow speed, (note-3) BFFS	45.0 mi/h
Adj. for lane and shoulder width, (note-3) fLs	4.7 mi/h
Adj. for access point density, (note-3) fA	3.8 mi/h
Free-Flow speed, FFSd	36.5 mi/h
Adjustment for no-passing zones, fnp	3.8 mi/h
Average travel speed, ATSD	29.0 mi/h
Percent Free Flow Speed, PFFS	79.5 %

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSp1	A
Peak 15-min total travel time, TT15	- veh-h

Bicycle Level of Service

Posted speed limit, Sp	30
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3

Percent Time-Spent-Following
Page 1

Page 2

