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# Vehicle Sight Distance and Mitigation Report



# Promise Wine

## Vehicle Sight Distance & Mitigation Report

Promise Wine Use Permit & Variance Application (P22-000384)

January 22, 2025

➔ **The Power of Commitment**



**GHD 380-**

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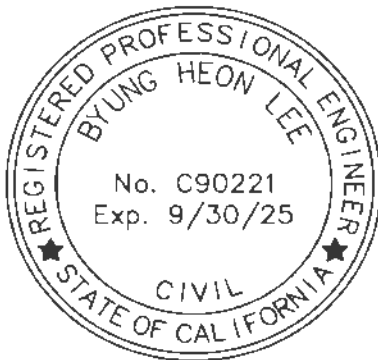
# Report Signature Sheet

This Sight Distance and Mitigation Study has been prepared under the direction of the following Registered Engineer. The registered Civil Engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.



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Byung Lee, TE, PE  
Registered Civil Engineer



# Executive Summary

GHD met with Napa County staff at the proposed project site at 2000 Sage Canyon Road to investigate field conditions related to vehicle sight distance in response to County concerns associated with the Promise Wine application. Specifically, the County requested a vehicle sight distance analysis for the Promise Wine driveway be conducted using the design speed of Sage Canyon Road (5-10 mph over the speed limit). As a result of the field meeting, it was determined that additional vehicle and roadway data should be collected on Sage Canyon Road given that road contours suggested travel would be below the roadway design speed. Vehicle and roadway data collection included average daily traffic (ADT) volumes, vehicle speed surveys, and overall vehicle classification on Sage Canyon Road at the Promise Wine driveway. Based on the results of the data collection, it was found that critical (85<sup>th</sup> percentile) vehicle speeds were slightly less than the design speed of the roadway (50-mph design speed vs. 48-mph 85<sup>th</sup> percentile speed). However, using the roadway's design speed of 50-mph or the critical speed of 48-mph would not satisfy the minimum vehicle sight distance requirements for the project driveway sighting east up Sage Canyon Road from the Promise Wine driveway.

Due to existing physical components of Sage Canyon Road in the project area, the Promise Wine driveway would not meet the Caltrans standard for required vehicle sight distance of 430-feet east or west of the driveway based on a design speed of 50-mph. The current measured sight distance from the Promise Wine driveway sighting to the west on Sage Canyon Road is 330- feet. Sighting to the east on Sage Canyon Road the available sight distance is approximately 300 feet. The physical components preventing the improvement of sight-distance include the following:

- a) **Vegetation:** Fairly heavy undergrowth and trees are present along the south shoulder and ROW of Sage Canyon Road both east and west of project driveway. In addition, a large oak tree is present on the north side of Sage Canyon Road that extends out and over the roadway preventing optimal sight lines to the east;
- b) **Horizontal and Vertical Curves:** Both horizontal and vertical curves are located west and east of the project driveway (respectively). These curves prevent motorists exiting the driveway from seeing beyond a specific point along the roadway for clear views of approaching vehicles;
- c) **Grade:** Sage Canyon Road slopes gently upwards (west-to-east) between Chiles-Pope Valley Road and the proposed project driveway. At the project driveway, the roadway slopes more severely in an eastward direction. The eastward slope of Sage Canyon Road limits motorists from sighting vehicles to the east beyond the calculated sight distance of 300 feet.

To improve vehicle sight distance at the Promise Wine Driveway and mitigate for reduced sight distance, the following physical and “driver awareness” roadside vehicle sight distance mitigation measures have been recommended for improved sighting, warning, and safety from the Promise Wine driveway and along Sage Canyon Road:

- **Trim Existing Vegetation;**
- **Improve Promise Wine Driveway Apron;**
- **Install Intersection Warning Signs (W2-7L) on Sage Canyon Road;**
- **Install Winery Directional Sign;**
- **Move Existing Mailboxes;**
- **Install LED Blinking Cross Traffic Ahead Warning Signs (W70 (CA))**
- **Encroachment Permit for Work in Caltrans ROW**

The recommended vehicle sight distance mitigations (listed above) were discussed with Napa County staff to provide solutions to current sight distance limitations at the Promise Wine driveway. Recommended mitigation measures would provide improved vehicle sight distance at the project driveway primarily sighting to the west increasing the

sight distance to approximately 400-feet. (see **Table 3.1**) However, other (more significant) geometric measures such as roadway widening and/or left-turn lane/deceleration lane installation on Sage Canyon Road are environmentally sensitive or physically restricted due to heritage trees, available ROW, roadway topography, and vertical curves. Based on Napa County guidelines for installation of a westbound left-turn lane on Sage Canyon Road, the proposed project would not meet the minimum volume requirements for installation of at this time (see Section 4.2).

Recommended vehicle sight distance measures are consistent with agency guidelines for improved sighting and have been used by GHD in other vehicle sight distance analyses. Proposed mitigation measures to improve vehicle sight distance would not compromise vehicle safety and would improve vehicle safety and overall driver awareness at the Promise Wine Driveway/Sage Canyon Road intersection over current conditions.

In summary, recommended physical mitigation measures to improve sighting in the westbound direction from the project driveway (vegetation trimming and mailbox re-positioning) would increase the sight distance to approximately 400-plus feet dependent on the aggressiveness of the trimming. 400 feet of vehicle sight distance (after mitigation) would essentially match the Caltrans requirement of 398-feet based on a critical speed of 48 mph. However, the existing physical impediments sighting to the east up Sage Canyon Road would limit vehicle sight distance from the project driveway to 300 feet. Therefore, additional operational and roadway mitigation measures have been recommended to improve driver awareness from both directions on Sage Canyon Road. Even with recommended mitigation, vehicle sight distance would not completely improve to meet minimum Caltrans standards sighting east from the Promise Wine driveway. Therefore, at the direction of Napa County Engineering staff the project applicant is requesting an exemption from the standard and provides this report for supporting evidence.

It is noted that Napa County has indicated that a formal traffic analysis is not required of the project. The proposed project would not generate significant daily and peak hour vehicle trips in/out of the driveway keeping potential vehicle conflicts to a minimum.

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# 1. Introduction

The following technical memorandum provides information related to vehicle sight distance and suggested safety improvements from the existing Promise Wine Driveway sighting along Sage Canyon Road. The Promise Wine driveway is located approximately 4.6 miles east of Silverado Trail on Sage Canyon Road (SR 128) (see **Figure 1-Project Vicinity Map**). In the project study area, Sage Canyon Road is a two-lane highway that extends between Silverado Trail and Berryessa-Knoxville Road providing access to the Napa Valley, Lake Berryessa, and Winters.

For this vehicle sight distance analysis; specific guidelines and information have been provided based on the Caltrans Highway Design Manual (HDM) for what is termed the “decision point.” The decision point is where the driver’s eye is sighting east and west along Sage Canyon Road from their stopped vehicle on the Promise Wine Driveway. By locating the decision point on the project driveway, vehicle sight distance can then be measured to specific points on Sage Canyon Road both east and west of the driveway to determine if adequate distances are available for the measured vehicle speeds along Sage Canyon Road. The various sight distance parameters are being provided in the context of recommended project circulation improvements for the Promise Wine Driveway and Sage Canyon Road. Additional references, guidelines, and discussions for measuring vehicle sight distance have also been provided specific to existing topography and curvature along Sage Canyon Road.

To facilitate the sight distance analysis, a field meeting with Napa County Public Works and Planning staff was held at the Promise Wine Driveway and Sage Canyon Road intersection. The meeting was held to investigate the existing roadway and driveway configuration and identify existing impediments and potential solutions for vehicle sight distance to facilitate vehicle safety for the subject intersection.<sup>1</sup>

The following vehicle sight distance parameters have been provided as a basis for recommended mitigation measures to improve vehicle sight distances from the Promise Wine Driveway east and west along Sage Canyon Road:

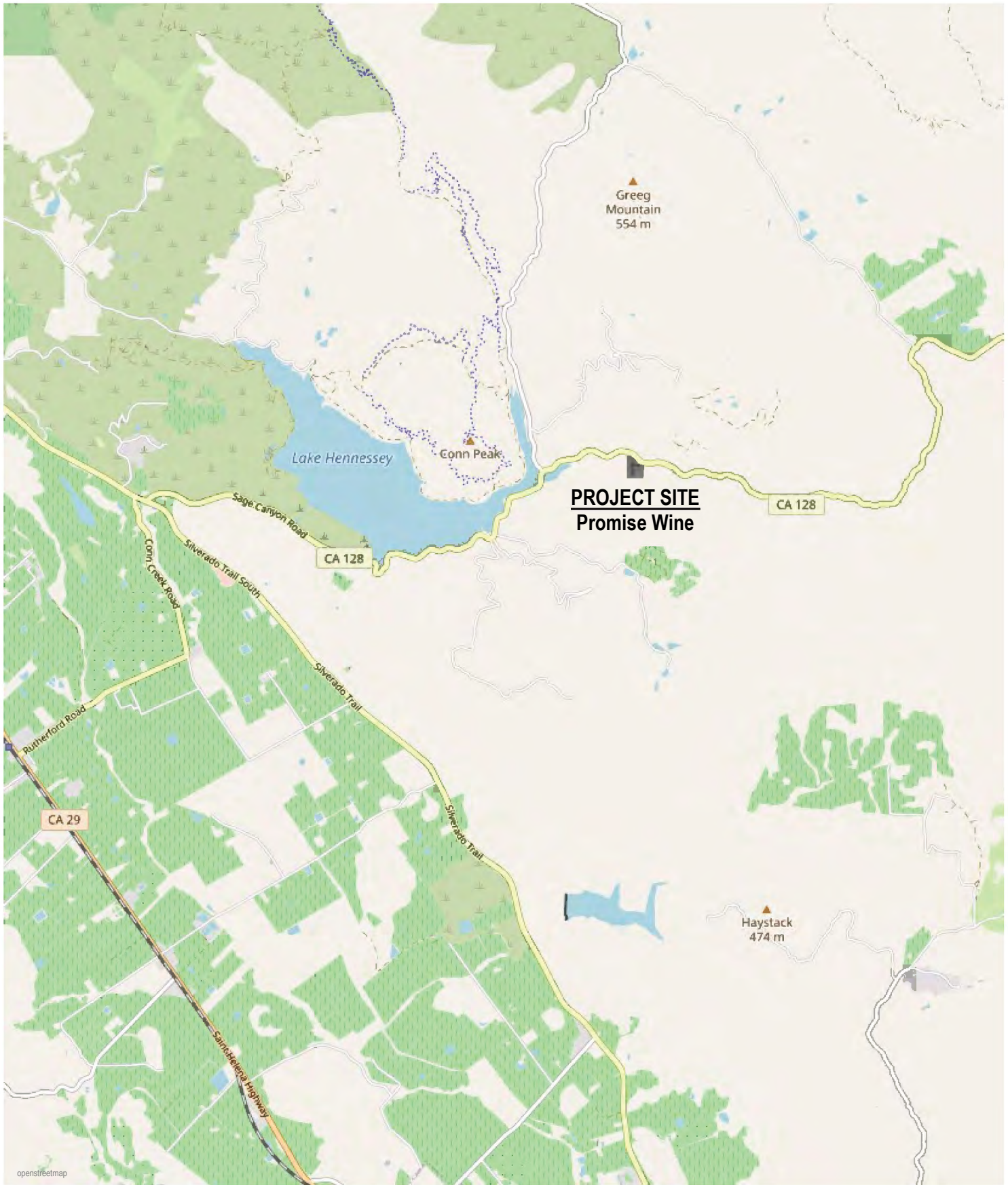
1. Sight distance “Decision Point” as defined by the Caltrans Highway Design Manual (HDM). Two decision points will be provided that will address both an initial driver’s eye set back, and “real world” set back as defined by the HDM;
2. Average Daily Traffic (ADT) volumes and Vehicle Classification on Sage Canyon Road at the proposed project driveway;
3. The vertical and horizontal vehicle sight distance line height requirements measured from a point on the Promise Wine Driveway to a point on Sage Canyon Road;
4. Measured vehicle speeds along Sage Canyon Road and corresponding vehicle sight distance requirements;
5. Caltrans Reference (Vehicle Sight Distance);
6. Resulting vehicle sight distance with planned (mitigated) circulation improvements based on physical and roadway sign recommendations;
7. Summary/Recommendations.

Based on the above parameters, the following information is provided to determine vehicle sight distances from the Promise Wine driveway east and west along Sage Canyon Road.

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<sup>1</sup> Ahsan Syed Kazmi, Senior Traffic Engineer, and Kelli Cahill, Senior Planner, Napa County, Josh Devore DP&F, Josh Stehling, Red Gate Development, Field meeting at Promise Wine Driveway and Sage Canyon Road, Sight distance evaluation/discussion, March 19, 2024.





PROJECT VICINITY MAP

FIGURE 1.1



## 2. Setting

The Promise Wine driveway is located approximately 4.6 miles east of Silverado Trail at 2000 Sage Canyon Road (SR 128). In this area, Sage Canyon Road generally extends in an east-west direction and is 22-feet wide with 11-foot travel lanes and striped edge lines. The shoulder width varies considerably and is frequently limited due to topography, slope, vegetation, and ROW. There is no posted speed limit on this highway segment. Sage Creek flows along the south side of roadway.

The Promise Wine driveway is located on the south side of Sage Canyon Road. Due to Sage Creek, a bridge extends over the creek between the driveway apron at Sage Canyon Road and the Winery grounds located south of Sage Creek. The driveway bridge is 20-feet wide. From the bridge, the driveway apron extends north another 35-feet and widens out considerably along Sage Canyon Road for approximately 75-feet. A Caltrans “Call-Box” station is located immediately east of the Promise Wine driveway on the south side of Sage Canyon Road in the unimproved gravel shoulder area.

### 2.1 Average Daily Traffic (ADT), Peak Hour Traffic, & Vehicle Classification

To discover existing traffic flow characteristics along Sage Canyon Road, average daily traffic (ADT) counts were conducted on Sage Canyon Road (SR 128) just west of the existing project driveway. Consistent with County guidelines, ADT counts were conducted on two consecutive Fridays and two consecutive Saturdays. In addition to ADT roadway data, both vehicle classification and vehicle speed data were collected during the same time periods (see Appendix A: Average Daily Traffic, Vehicle Classification, and Vehicle Speed Data)..

As recorded, the highest combined ADT volume on Sage Canyon Road at the project driveway is 1,525 vehicles recorded on a Friday 24-hour period. During the peak travel periods of Friday afternoon between 4:00-6:00 p.m. and Saturday between Noon-4:00 p.m., the highest recorded peak hour volume was 217 vehicles (two-way). The Highway Capacity Manual (HCM) classifies two-lane highways into three types of facilities that include Class I, II, and III dependent on travel speeds, trip lengths, and demographic/developed areas. Based on measure of effectiveness (MOE), the level-of-service calculations incorporate average travel speeds (ATS), percent time spent following (PTSF), and percent of free-flow speed (PFFS). In addition, roadway segment peak hour volumes are classified by Planning Level Volumes as shown in **Table 2.1**. Based on a Class II Highway (rolling terrain) and peak hour volume of 217 (both directions), the roadway segment on Sage Canyon Road is operating at LOS A (free-flow conditions).

In addition to ADT and peak directional volumes, vehicle classification was also recorded on Sage Canyon Road. The Federal Highway Administration (FHWA) has over 15 different classifications of vehicles ranging from bicycles to heavy duty 6-axle trailer/trucks. However, for the purpose of this analysis, overall classification will be expressed as passenger car vehicles (includes light trucks) and heavy vehicles that include buses and medium/heavy trucks. Currently, Napa County guidelines require a minimum assumption of five percent heavy vehicles in all intersection/roadway calculations. As surveyed, the heavy vehicle percentage is currently 70 percent passenger car vehicles and 29 percent heavy vehicles on Sage Canyon Road at the Promise Wine Driveway during a Friday 24-hour period. During a Saturday 24-hour period, there are 85 percent passenger car vehicles and 13 percent heavy vehicles. The remaining 1-3 percent is made up of bikes and/or buses.

Table 2.1 Class II Roadway Segment Level of Service (LOS) Criteria

Code	Functional Class Codes (Updated to HCM 2010)	HCM 2010 Planning Level Volumes				
		A	B	C	D	E
2A	Two-Lane Arterial	—	—	850	1,540	1,650
	2000 Sage Canyon Road at Promise Wine Driveway	217				
<i>Freeway LOS based on HCM 2010, Exhibit 10-8, Urban Area, Rolling Terrain, K-factor of 0.09, and D-factor of 0.60</i> <i>2-lane highway (and arterial 2-lane) LOS based on HCM 2010, Exhibit 15-30, Class II Rolling, .09 K-factor and D-factor of 0.6</i> <i>Arterial LOS based on HCM 2010, Exhibit 16-14, K-factor of 0.09, posted speed of 45 mi/h</i> <i>Volumes are for both directions unless noted</i>						

## 2.2 Vehicle Sight Distance Field Observations

Based on field visit(s) to the Promise Wine driveway, the following physical factors were observed sighting west and east along Sage Canyon Road from the driveway as shown in driveway sightlines **Figures 2.1 & 2.2**.

### 2.2.1 Vehicles Sighting West Down Sage Canyon Road

From the Promise Wine driveway sighting west on Sage Canyon Road, the roadway segment is descending downhill at a very moderate grade immediately west of the driveway. On the south side of Sage Canyon Road, the vegetation is less dense with a mix of slim tall trees and shrubs that extend between the shoulder area into the Sage Creek basin. The tree's canopies are somewhat higher which allows windows in the viewshed looking west from the driveway to the next prominent curve on Sage Canyon Road. In addition, there are three existing mailboxes just to the west of the Promise Wine driveway (about 15-feet) in the shoulder area. The north side of Sage Canyon Road reflects the same hillside grasslands and oak trees extending up from the roadway shoulder. The viewshed looking west from the Promise Wine driveway is clear on the north side of the roadway and is part of the Estancia Wine property that is maintained through trimming (grasses).

### 2.2.2 Vehicles Sighting East Up Sage Canyon Road

From the Promise Wine driveway sighting east on Sage Canyon Road; the roadway segment is ascending uphill at a moderate grade immediately east of the driveway. On the south side of Sage Canyon Road, the vegetation is dense once past the roadway shoulder area moving along and down towards Sage Creek. On the north side of Sage Canyon Road there is much less tall vegetation. A hill slopes down (north to south) and reflects hillside grasslands and larger oak trees. With the moderate grade of Sage Canyon Road, sighting to the east from the driveway allows a motorist to see further up the hill looking through the eastbound travel lane until the segment curves further up the hill extending towards Lower Chiles Road. A very large oak tree is situated on the north side of Sage Canyon Road on the uphill apex of the curve and overhangs the roadway. The large tree tends to block the viewshed around the curve when traveling westbound down Sage Canyon Road.





LOOKING WEST FROM PROMISE WINE ACCESS DRIVEWAY

FIGURE 2.1





### 3. Caltrans: Vehicle Sight Distance ‘Decision Point’

Based on Caltrans Intersection Design Standards, unsignalized intersections require a minimum corner sight distance initially based on the driver’s eye “decision point” to be analyzed as follows:

“At unsignalized intersections a substantially clear line of sight should be maintained between the driver of a vehicle, bicyclist, or pedestrian stopped on the minor road and the driver of an approaching vehicle on the major road that has no stop. Line of sight for all users should be included in right of way, in order to preserve sight lines.

In determining corner sight distance, a setback distance for the vehicle waiting on the minor road must be assumed as measured from the edge of travelled way (ETW) of the major road. Setback for the driver of the vehicle on the minor road should be a minimum of 10-feet plus the shoulder width of the major road but not less than 15-feet from the ETW. The location of the driver’s eye (or start of setback distance) from the vehicle on the minor road is referred as the “decision point.”

#### Horizontal and Vertical Line Height Requirements (Caltrans)

“Line of sight for corner sight distance for passenger cars is to be determined from a 3 and ½-foot height at the location of the driver of the vehicle in the center of the minor road lane to a 3 and ½-foot object height in the center of the approaching outside lane of the major road.

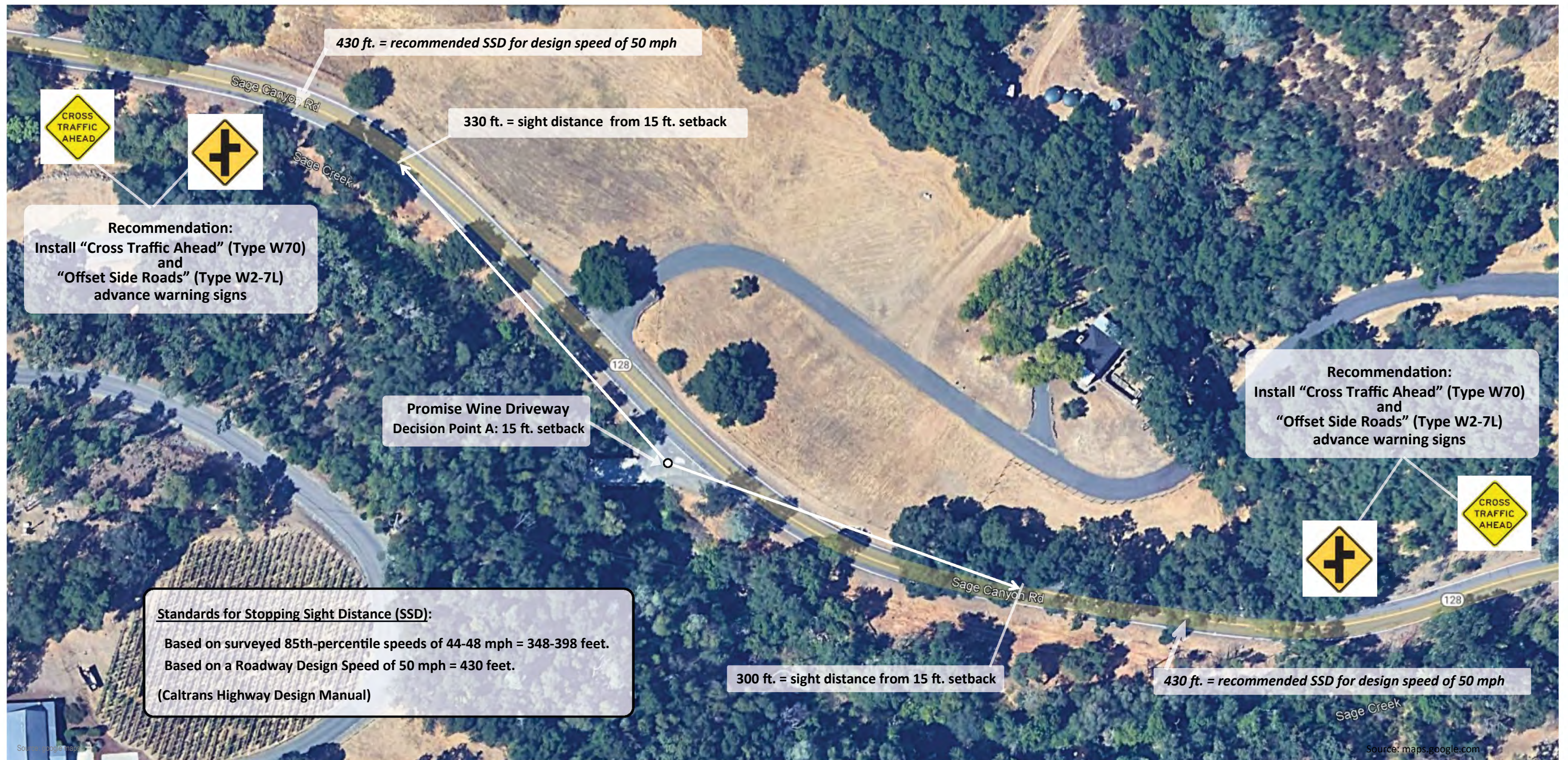
The primary reference for vehicle sight distance methodology and recommendations in this technical memorandum are found in the *Caltrans Highway Design Manual (HDM), Topic 405—Intersection Design Standards, Section 405-1 Sight Distance, Corner Sight Distance (unsignalized intersections), July 1, 2020*. In addition, an example of determining the corner sight distance from an unsignalized intersection is also cited in the Caltrans Highway Design Manual (HDM Figure 504.31). In addition to the HDM Figure, selected Caltrans references from Chapters 200 and 400 associated with vehicle sight distance standards and corner sight distance as well as vehicle speed surveys conducted on Sage Canyon Road are also provided in **Appendix B**.

### 3.1 Promise Wine Driveway: Vehicle Sight Distance “Decision Points”

Based on Caltrans design methodology for determining vehicle sight distance from an unsignalized intersection, the “decision point” location for measuring vehicle sight distance from the Promise Wine driveway sighting east and west along Sage Canyon Road is shown in **Figure 3.1**. The vehicle decision point is shown on the Promise Wine driveway in **Figure 3.1**; 1) Decision Point A, . A brief explanation of Decision Point A follows:

Decision Point A: The location of decision point A is based on the Caltrans methodology that recommends the eye of the driver set back should be a minimum of 15-feet plus the shoulder width. Decision point A represents the initial driver’s eye sighting point from the Promise Wine driveway 15-feet behind the lane edge line on Sage Canyon Road. However, in discussions with GHD design engineers, decision point A would likely not represent the motorist’s ultimate sighting line from the Promise Wine driveway due to existing trees, shrubs, vegetation, and mailboxes located within the south shoulder area along Sage Creek Road and the Caltrans vehicle right-of-way. Outbound motorists on the Promise Wine driveway will initially stop at decision point A for sighting purposes looking west. Motorists will then likely move forward on the driveway apron to decision point B;







There are advantages (better sight lines) and disadvantages (worse sight lines) dependent on where the outbound vehicle is stopped on the Promise Wine driveway. Stopping further back at decision point A (15-feet) allows a motorist to look east further up Sage Canyon Road and west behind the existing mailboxes. Stopping within 7-feet of the edge line allows a motorist to see around the mailboxes, existing trees and most vegetation to the west and provides a clearer view of through-traffic on Sage Canyon Road.

Measuring the available vehicle sight distance from decision point A on the Promise Wine driveway east and west on Sage Canyon Road would provide a “real world” setback. Decision point A is consistent with Caltrans sight distance recommendations that allow for motorists to move no less than 15-feet within the edge of travelled way to obtain sight distance on the major roadway. As noted, the Caltrans guidelines indicate that the sight distance should be measured to approaching outside lane (two-lane roadway).

## 3.2 Sage Canyon Road: Measured Vehicle Speeds & Required Sight Distance

Based on both mechanical and physical radar speed surveys conducted on Sage Canyon Road at the Promise Wine Driveway, the critical speeds at which vehicles are traveling (85<sup>th</sup> percentile) is 44-48 mph in both directions (dependent on Friday or Saturday). The critical speed is defined as what 85 percent of the surveyed motorists are driving at or below on a particular roadway segment. There is no posted speed limit on Sage Canyon Road in the project study area. However, an “End 40 mph” is located approximately 0.8 miles west towards the bridge at Lake Hennessey. Based on the highest surveyed critical vehicle speed of 48 mph on Sage Canyon Road, the required vehicle sight distance would be 398-feet for motorist sight lines looking from the Promise Wine driveway east-west along Sage Canyon Road as shown in **Table 3.1**.

Consideration has also been given to the design speed of the roadway. The Federal Highway Administration (FHWA) generally defines the design speed of a roadway to reflect the highest sustained speed permitted by the features of the roadway itself under ideal conditions. A roadway’s design is typically governed by many factors including vehicle sight distance, vertical curvature, horizontal curvature, and superelevation (or banking). In general, the design speed for a roadway is typically 5-10 mph higher than the posted speed limit to account for the highest sustained speeds. In addition, the design speed of a roadway can mimic the 95<sup>th</sup> percentile surveyed speeds of the roadway. In the case of Sage Canyon Road, the 95<sup>th</sup> percentile speed was surveyed at 50 mph. However, it is very likely that vehicle speeds would not increase over time given the topography, curvature, and sight distance factors in this roadway segment as evidenced by the current 85<sup>th</sup> percentile speeds of 44-48 mph. However, should a design speed of 50 mph be considered, a sight distance of 430 feet would be required east-west along Sage Canyon Road. With recommended sight distance measures (Section 4.1) and using the 85<sup>th</sup> percentile speed of 48 mph on Sage Canyon Road; vehicle sight distance would essentially be met sighting to the west at shown in **Table 3.1** (302’required, 400’ mitigated).

**Table 3.1 Class II Roadway Segment Level of Service (LOS) Criteria**

Facility: Promise Wine Driveway	Required Sight Distance <sup>1</sup>		Available Sight Distance		
	Design Speed	85th Percentile Speed	Measured Sight Distance	Met Y/N	Mitigated Sight Distance
	50 mph Feet	48 mph Feet	Feet		Feet
Sage Canyon Road Looking East	430	398	300	No	300
Looking West	430	398	330	No	400*

1. Caltrans, Highway Design Manual, Chapter 200, Table 201.1 Sight Distance Standards, July 1, 2020.

\* 400-feet of sight distance dependent on amount of vegetative trimming and mailbox removal. Meets 48-mph standard



## 4. General Agency Recommendations to Improve Vehicle Sight Distance

Caltrans provides specific guidance and design standards for determining adequate vehicle sight distance for safe driveway ingress/egress as outlined in **Sections 3 and 3.1**. However, the Highway Design Manual (*HDM*) does not provide significant supplemental guidance and/or measures to improve vehicle sight distance when the minimum requirements are not met. The HDM does acknowledge that “in some cases the costs to obtain adequate vehicle sight distance (7.5 seconds to merge onto main roadway) may be excessive. High costs may be attributable to right-of-way acquisition, building removal, extensive excavation, or immitigable environmental impacts.” Consequently, guidance from other federal and state agencies has been reviewed for recommended measures to improve vehicle sight distance.

The Federal Highway Administration (FHWA) provides recommendations for vehicle sight distance and safety measures associated with local rural roadways.<sup>1</sup> Potential vehicle sight distance improvements can be categorized as operational, geometric, or roadside as follows:

- **Operational:** Operational measures involve modifying the behaviour and/or expectations of the motorist by reducing speed limits, restricting turning movements, or increasing their awareness while traveling on the roadway;
- **Geometric:** Geometric measures relate to modifying and re-designing the roadway. Modifications might involve lowering the grades, providing more shoulder or lane width, and straightening or flattening curves;
- **Roadside:** Roadside solutions are associated with introducing, updating, or changing the features and elements of the roadway to provide the motorists with new alerts or sight distance. These measures include relocating or removing obstructions, trimming, and pruning vegetation, and/or installing and improving pavement markings, signs, lighting, signals, and roundabouts.

Based on the various vehicle sight distance categories (above), proposed project operational and roadside recommendations have been primarily based on suggested roadside improvements.

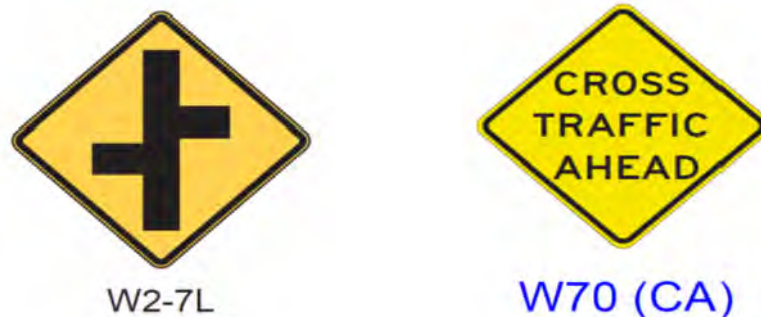
### 4.1 Specific Measures to Improve Sight Distance and Driver Awareness at Promise Wine Driveway

Based on discussions with Napa County Engineering staff and the results of the initial vehicle sight inquiry at the Promise Wine driveway and Sage Canyon Road; the following measures are suggested to improve vehicle sight distance:

- **Trim Existing Vegetation:** The existing vegetation on the south side of Sage Canyon Road both east and west of the Promise Wine driveway should be trimmed (to the extent possible). Lower shrubs and bushes should be cleared, and tree canopies trimmed upwards to provide windows through the trees. Dependent on the amount of vegetation trimming and tree pruning, it is likely vehicle sight distance could be improved to 400+ feet when sighting to the west on Sage Canyon Road;
- **Improve Promise Wine Driveway Apron:** Re-stripe the Promise Wine driveway apron to provide clear inbound/outbound paths to include a driveway center-line and stop-bar. In addition, install a stop-sign for outbound vehicles (see CAMUTCD Examples of Intersection Markings—Appendices);
- **Install Intersection Warning (W2-7L) and Cross Traffic Ahead (W70 CA) Signs.** Install intersection warning signs on Sage Canyon Road (SR 128) both east and west of the Promise Wine driveway. Based on the California Manual on Uniform Traffic Control Devices (CAMUTCD), the signs would be installed both east

and west of the Promise Wine driveway as shown in **Figure 3.1**. In addition, install Cross Traffic Ahead signs (W70 (CA)) further east and west of intersection warning signs prior to curves on Sage Canyon Road. Examples of the suggested signs are as follows:

CAMUTCD Intersection Warning Sign and Cross Traffic Ahead signs:



The suggested sign (above) would alert motorists traveling east and west on Sage Canyon Road to the approaching Promise Wine driveway and/or Estancia Winery driveway (located on the north side of roadway).

- **Install Winery Directional Sign:** A winery directional sign(s) shall be installed for motorists approaching the Promise Wine driveway from the west on Sage Canyon Road. Consistent with Napa County Sign Permit Standards, the sign shall be 1-foot by 3-foot employing white reflective copy on a solid blue background. The directional sign will alert motorists to the Winery and prevent abrupt slowdowns, U-turns, and additional travel on Sage Canyon Road;



- **Move Existing Mailboxes:** Re-locate the existing mailboxes situated on the west side of the Promise Wine driveway further back in the shoulder to provide additional vehicle sight distance sighting to the west. Dependent on vegetation trimming, the exact location could be determined after trimming to ensure an optimal location for both outbound vehicles and mail delivery.
- **Install LED Blinking Warning Signs:** The recommended cross traffic ahead signs (W70 (CA)) for Sage Canyon Road can be supplemented (converted) to LED blinking signs to further driver awareness. Signs could be triggered to flash (vehicle activated) when an outbound driver is stopped on the Promise Wine driveway via solar and/or presence detector-loop induction. for additional effect and safety consistent with CAMUTCD guidelines. A similar intersection warning sign exists on southbound Silverado Trail as it approaches Yountville Crossroad.

- **Encroachment Permit:** Based on recommended sight distance mitigation measures along Sage Canyon Road (SR 128) and initial feedback from Caltrans, an encroachment permit will be necessary for any work conducted within the Caltrans ROW along Sage Canyon Road (SR 128).<sup>2</sup>

With the implementation of recommended mitigation measures, overall vehicle sight distance would be proportionately improved, particularly sighting to the west from the driveway on Sage Canyon Road. Gains in vehicle sight distance to the east would be minimal based on the physical characteristics of the roadway (slope, cut-bank, oak tree, and vertical curve). However, proposed mitigation measures to improve vehicle sight distance would not compromise vehicle safety and would improve overall driver awareness at the Promise Wine Driveway/Sage Canyon Road intersection over current conditions. Recommended operational and roadside mitigation measures will improve driver awareness approaching the Promise Wine driveway as well as allow greater vision sighting west from the driveway.

## 4.2 Napa County Left-Turn Lane Warrant

Existing plus Project daily volumes were compared with the Napa County guidelines for installing a westbound left-turn lane on Sage Canyon Road at the Promise Wine driveway.<sup>3</sup> (The warrant graphs and project trip generation for weekday and Saturday conditions are provided in the **Appendix C**). The Napa County left-turn lane warrant is based on the combination of total proposed project daily trips (plus the existing residence) at the driveway and overall daily volumes on Sage Canyon Road. With 37-36 total daily trips (weekday/weekend) on the Sage Canyon Road project driveway and 1,525-1,314 total daily trips (weekday/weekend) on Sage Canyon Road, a westbound left-turn lane would *not be warranted* on Sage Canyon Road at the Promise Wine driveway based on County daily volume warrant requirements. It is noted that the proposed project is well below the County volume thresholds to warrant installation of a left-turn lane. The proposed project would have to generate between 80-90 daily trips at the driveway to satisfy warrant requirements.

## 5. Summary & Recommendations

Using surveyed 85<sup>th</sup> percentile vehicle speeds along Sage Canyon Road, the Caltrans minimum sight distance would be 398-feet (48 mph) sighting to the east and west on Sage Canyon Road. Using a vehicle design speed of 50 mph would require a sight distance of 430-feet both east and west on Sage Canyon Road. Currently, sight distance to the west from the Promise Wine driveway is approximately 330-feet, and 300-feet to the east. As noted in the analysis, the topography, curvature, slope, and vegetation on and along Sage Canyon Road would tend to keep vehicle speeds from increasing beyond surveyed data. Combined with low traffic volumes of 1,525 ADT on Sage Canyon Road (while below the Caltrans left-turn design standard for a new intersection), the suggested vehicle sight distance measures would proportionately improve vehicle sight lines and vehicle safety primarily to the west and are recommended (**Section 4.1**) for the Promise Wine driveway. Based on Napa County guidelines for installation of a westbound left-turn lane on Sage Canyon Road, the proposed project would not meet the minimum volume requirements for installation at this time. Suggested measures include vegetation trimming, driveway apron improvements/signs, and installation of blinking LED warning signs on Sage Canyon Road consistent with field input from County Engineering staff. However, removal of the existing large oak tree located on the north side of Sage Canyon Road east of the driveway is not recommended.

The existing sight lines combined with recommended mitigation measures to improve sight distance would increase vehicle sight distance as shown in **Table 3.1**. As noted, proposed mitigation measures to improve vehicle sight distance would not compromise vehicle safety and would improve overall driver awareness at the Promise Wine Driveway/Sage Canyon Road intersection over current conditions.

<sup>2</sup> Lliset Ayon, Associate Transportation Planner, Caltrans District 4, Personal correspondence, September 18, 2024.

<sup>3</sup> Napa County, Adopted Road and Street Standards, revised January 21, 2023.

Recommended mitigation measures would not improve vehicle sight distance at the Promise Wine driveway to meet minimum Caltrans standards based on a design speed of 50-mph. Therefore, at the direction of Napa County Engineering staff, the project applicant is requesting an exemption from the standard and provides this report for supporting evidence.

It is noted that the County has indicated that a formal traffic analysis is not required of the project. The proposed project would not generate significant daily and peak hour vehicle trips at the driveway keeping potential vehicle conflicts to a minimum.

# APPENDIX:

Appendix A. Average Daily Traffic, Vehicle Classification, and Vehicle Speed Data

Appendix B: Caltrans HDM Figure, HDM Excerpts Chapters 200 & 400

Appendix C: Project Trip Generation & Napa County Left-Turn Lane Graph

# Appendix A

Average Daily Traffic, Vehicle Classification, and Vehicle Speed Data

# Counts Unlimited, Inc.

County of Napa  
State Route 128  
E/ Promise Wine Winery Driveway  
48 Hour Directional Classification Count

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Corona, CA 92878  
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email: counts@countsunlimited.com

Page 1

CNP001C  
Site Code: 200-24299A

## Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/19/24	0	2	0	0	0	0	0	0	0	0	0	0	0	2
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:00	0	3	3	0	3	0	0	1	0	0	0	0	0	10
06:00	0	8	8	0	12	0	0	1	0	0	0	0	0	29
07:00	0	4	4	0	13	0	0	1	0	0	0	0	0	22
08:00	1	10	5	0	11	0	0	0	0	0	0	0	0	27
09:00	0	8	5	0	8	0	0	<b>5</b>	0	0	0	0	0	26
10:00	1	<b>14</b>	<b>10</b>	0	14	<b>1</b>	0	1	0	0	0	0	0	41
11:00	<b>3</b>	12	7	0	<b>17</b>	1	0	3	0	0	0	0	0	<b>43</b>
12 PM	0	20	10	1	22	0	0	1	0	0	0	0	0	54
13:00	<b>1</b>	22	15	0	23	0	0	3	0	0	0	0	0	64
14:00	0	66	40	<b>3</b>	31	0	0	4	0	0	0	0	0	144
15:00	0	87	<b>43</b>	0	<b>38</b>	0	0	<b>5</b>	0	0	0	0	0	<b>173</b>
16:00	1	<b>95</b>	32	1	34	0	0	2	0	0	0	0	0	165
17:00	0	48	27	0	27	0	0	4	0	0	0	0	0	106
18:00	1	30	11	0	5	0	0	0	0	0	0	0	0	47
19:00	0	9	3	0	5	0	0	0	0	0	0	0	0	17
20:00	0	10	5	0	1	0	0	1	0	0	0	0	0	17
21:00	0	5	2	0	0	0	0	0	0	0	0	0	0	7
22:00	0	5	1	0	1	0	0	0	0	0	0	0	0	7
23:00	0	1	0	0	1	0	0	0	0	0	0	0	0	2
Total	8	460	231	5	266	2	0	32	0	0	0	0	0	1004
Percent	0.8%	45.8%	23.0%	0.5%	26.5%	0.2%	0.0%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	10:00	10:00		11:00	10:00		09:00						11:00
Vol.	3	14	10		17	1		5						43
PM Peak	13:00	16:00	15:00	14:00	15:00			15:00						15:00
Vol.	1	95	43	3	38			5						173

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CNP001C  
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## Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/20/24	0	2	0	0	0	0	0	0	0	0	0	0	0	2
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	1	0	0	1	0	0	0	0	0	2
05:00	0	3	0	0	2	0	0	2	0	0	0	0	0	7
06:00	0	5	4	0	5	0	0	2	0	0	0	0	0	16
07:00	0	5	8	0	1	0	0	1	0	0	0	0	0	15
08:00	0	8	3	0	7	0	0	0	0	0	0	0	0	18
09:00	4	18	3	0	1	0	0	1	0	0	0	0	0	27
10:00	2	19	11	0	3	0	0	1	0	0	0	0	0	36
11:00	1	21	15	0	4	0	0	0	0	0	0	0	0	41
12 PM	1	21	6	1	7	0	0	3	0	0	0	0	0	39
13:00	3	21	13	0	8	0	0	0	0	0	0	0	0	45
14:00	4	44	16	0	6	0	0	0	0	0	0	0	0	70
15:00	1	37	12	0	7	0	0	2	0	0	0	0	0	59
16:00	0	52	18	0	7	0	0	0	0	0	0	0	0	77
17:00	0	38	6	0	2	0	0	1	0	0	0	0	0	47
18:00	0	22	7	0	4	0	0	0	0	0	0	0	0	33
19:00	0	18	8	0	2	0	0	0	0	0	0	0	0	28
20:00	0	5	6	0	1	0	0	0	0	0	0	0	0	12
21:00	0	5	1	0	2	0	0	1	0	0	0	0	0	9
22:00	0	5	4	0	0	0	0	0	0	0	0	0	0	9
23:00	1	2	0	0	2	0	0	0	0	0	0	0	0	5
Total	17	352	141	1	72	0	0	15	0	0	0	0	0	598
Percent	2.8%	58.9%	23.6%	0.2%	12.0%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	11:00	11:00		08:00			05:00						11:00
Vol.	4	21	15		7			2						41
PM Peak	14:00	16:00	16:00	12:00	13:00			12:00						16:00
Vol.	4	52	18	1	8			3						77
Grand Total	25	812	372	6	338	2	0	47	0	0	0	0	0	1602
Percent	1.6%	50.7%	23.2%	0.4%	21.1%	0.1%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	



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email: counts@countsunlimited.com

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CNP001C  
Site Code: 200-24299A

## Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/19/24	0	1	0	0	0	0	0	0	0	0	0	0	0	1
01:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	1	0	0	2	0	0	0	0	0	0	0	0	3
05:00	0	4	7	0	2	0	0	0	0	0	0	0	0	13
06:00	0	21	<b>20</b>	0	<b>16</b>	0	0	1	0	0	0	0	0	<b>58</b>
07:00	0	13	5	0	10	0	0	1	0	0	0	0	0	29
08:00	0	<b>26</b>	10	0	6	0	0	<b>3</b>	0	0	0	0	0	45
09:00	0	14	6	0	5	0	0	0	0	0	0	0	0	25
10:00	<b>3</b>	19	8	0	11	<b>1</b>	0	1	<b>1</b>	0	0	0	0	44
11:00	1	17	13	0	6	0	0	0	0	0	0	0	0	37
12 PM	<b>1</b>	15	<b>13</b>	0	7	0	0	<b>2</b>	0	0	0	0	0	38
13:00	0	23	6	0	5	0	0	1	0	0	0	0	0	35
14:00	0	19	11	<b>1</b>	<b>11</b>	0	0	0	0	0	0	0	0	42
15:00	0	17	5	0	9	0	0	2	0	0	0	0	0	33
16:00	0	26	2	0	6	0	0	1	0	0	0	0	0	35
17:00	0	<b>29</b>	10	1	4	0	0	1	0	0	0	0	0	<b>45</b>
18:00	0	5	3	0	2	0	0	0	0	0	0	0	0	10
19:00	0	9	2	0	0	0	0	0	0	0	0	0	0	11
20:00	0	1	1	0	1	0	0	0	0	0	0	0	0	3
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	2	2	0	0	0	0	0	0	0	0	0	0	4
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	265	125	2	103	1	0	13	1	0	0	0	0	515
Percent	1.0%	51.5%	24.3%	0.4%	20.0%	0.2%	0.0%	2.5%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	08:00	06:00		06:00	10:00		08:00	10:00					06:00
Vol.	3	26	20		16	1		3	1					58
PM Peak	12:00	17:00	12:00	14:00	14:00			12:00						17:00
Vol.	1	29	13	1	11			2						45

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CNP001C  
Site Code: 200-24299A

## Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/20/24	0	1	1	0	0	0	0	0	0	0	0	0	0	2
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
05:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
06:00	0	4	2	0	2	0	0	0	0	0	0	0	0	8
07:00	0	8	4	0	1	0	0	1	0	0	0	0	0	14
08:00	0	21	7	0	1	0	0	0	0	0	0	0	0	29
09:00	1	9	6	0	2	0	0	2	0	0	0	0	0	20
10:00	2	19	12	0	7	0	0	2	0	0	0	0	0	42
11:00	4	51	9	0	3	0	0	3	0	0	0	0	0	70
12 PM	7	93	11	0	4	0	0	1	0	0	0	0	0	116
13:00	3	74	17	2	6	0	0	2	0	0	0	0	0	104
14:00	2	61	8	1	3	0	0	3	0	0	0	0	0	78
15:00	2	37	9	0	6	0	0	0	0	0	0	0	0	54
16:00	2	35	11	0	2	0	0	3	0	0	0	0	0	53
17:00	2	39	4	0	2	0	0	1	0	0	0	0	0	48
18:00	0	21	4	0	3	0	0	1	0	0	0	0	0	29
19:00	0	8	7	0	1	0	0	0	0	0	0	0	0	16
20:00	0	7	3	0	0	0	0	1	0	0	0	0	0	11
21:00	0	7	2	0	0	0	0	1	0	0	0	0	0	10
22:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
23:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
Total	25	505	119	3	43	0	0	21	0	0	0	0	0	716
Percent	3.5%	70.5%	16.6%	0.4%	6.0%	0.0%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	11:00	10:00		10:00			11:00						11:00
Vol.	4	51	12		7			3						70
PM Peak	12:00	12:00	13:00	13:00	13:00			14:00						12:00
Vol.	7	93	17	2	6			3						116
Grand Total	30	770	244	5	146	1	0	34	1	0	0	0	0	1231
Percent	2.4%	62.6%	19.8%	0.4%	11.9%	0.1%	0.0%	2.8%	0.1%	0.0%	0.0%	0.0%	0.0%	

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CNP001C  
Site Code: 200-24299A

## Eastbound, Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/19/24	0	3	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	2	0	0	2	0	0	0	0	0	0	0	0	4
05:00	0	7	10	0	5	0	0	1	0	0	0	0	0	23
06:00	0	29	<b>28</b>	0	<b>28</b>	0	0	2	0	0	0	0	0	<b>87</b>
07:00	0	17	9	0	23	0	0	2	0	0	0	0	0	51
08:00	1	<b>36</b>	15	0	17	0	0	3	0	0	0	0	0	72
09:00	0	22	11	0	13	0	0	<b>5</b>	0	0	0	0	0	51
10:00	<b>4</b>	33	18	0	25	<b>2</b>	0	2	<b>1</b>	0	0	0	0	85
11:00	4	29	20	0	23	1	0	3	0	0	0	0	0	80
12 PM	<b>1</b>	35	23	1	29	0	0	3	0	0	0	0	0	92
13:00	1	45	21	0	28	0	0	4	0	0	0	0	0	99
14:00	0	85	<b>51</b>	<b>4</b>	42	0	0	4	0	0	0	0	0	186
15:00	0	104	48	0	<b>47</b>	0	0	<b>7</b>	0	0	0	0	0	<b>206</b>
16:00	1	<b>121</b>	34	1	40	0	0	3	0	0	0	0	0	200
17:00	0	77	37	1	31	0	0	5	0	0	0	0	0	151
18:00	1	35	14	0	7	0	0	0	0	0	0	0	0	57
19:00	0	18	5	0	5	0	0	0	0	0	0	0	0	28
20:00	0	11	6	0	2	0	0	1	0	0	0	0	0	20
21:00	0	5	2	0	0	0	0	0	0	0	0	0	0	7
22:00	0	7	3	0	1	0	0	0	0	0	0	0	0	11
23:00	0	1	0	0	1	0	0	0	0	0	0	0	0	2
Total	13	725	356	7	369	3	0	45	1	0	0	0	0	1519
Percent	0.9%	47.7%	23.4%	0.5%	24.3%	0.2%	0.0%	3.0%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	08:00	06:00		06:00	10:00		09:00	10:00					06:00
Vol.	4	36	28		28	2		5	1					87
PM Peak	12:00	16:00	14:00	14:00	15:00			15:00						15:00
Vol.	1	121	51	4	47			7						206

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04/20/24	0	3	1	0	0	0	0	0	0	0	0	0	0	4
01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	1	1	0	1	0	0	1	0	0	0	0	0	4
05:00	0	6	1	0	2	0	0	2	0	0	0	0	0	11
06:00	0	9	6	0	7	0	0	2	0	0	0	0	0	24
07:00	0	13	12	0	2	0	0	2	0	0	0	0	0	29
08:00	0	29	10	0	8	0	0	0	0	0	0	0	0	47
09:00	<b>5</b>	27	9	0	3	0	0	<b>3</b>	0	0	0	0	0	47
10:00	4	38	23	0	<b>10</b>	0	0	3	0	0	0	0	0	78
11:00	5	<b>72</b>	<b>24</b>	0	7	0	0	3	0	0	0	0	0	<b>111</b>
12 PM	<b>8</b>	<b>114</b>	17	1	11	0	0	<b>4</b>	0	0	0	0	0	<b>155</b>
13:00	6	95	<b>30</b>	<b>2</b>	<b>14</b>	0	0	2	0	0	0	0	0	149
14:00	6	105	24	1	9	0	0	3	0	0	0	0	0	148
15:00	3	74	21	0	13	0	0	2	0	0	0	0	0	113
16:00	2	87	29	0	9	0	0	3	0	0	0	0	0	130
17:00	2	77	10	0	4	0	0	2	0	0	0	0	0	95
18:00	0	43	11	0	7	0	0	1	0	0	0	0	0	62
19:00	0	26	15	0	3	0	0	0	0	0	0	0	0	44
20:00	0	12	9	0	1	0	0	1	0	0	0	0	0	23
21:00	0	12	3	0	2	0	0	2	0	0	0	0	0	19
22:00	0	6	4	0	0	0	0	0	0	0	0	0	0	10
23:00	1	5	0	0	2	0	0	0	0	0	0	0	0	8
Total	42	857	260	4	115	0	0	36	0	0	0	0	0	1314
Percent	3.2%	65.2%	19.8%	0.3%	8.8%	0.0%	0.0%	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	11:00	11:00		10:00			09:00						11:00
Vol.	5	72	24		10			3						111
PM Peak	12:00	12:00	13:00	13:00	13:00			12:00						12:00
Vol.	8	114	30	2	14			4						155
Grand Total	55	1582	616	11	484	3	0	81	1	0	0	0	0	2833
Percent	1.9%	55.8%	21.7%	0.4%	17.1%	0.1%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	

# Counts Unlimited, Inc.

County of Napa  
State Route 128  
E/ Promise Wine Winery Driveway  
48 Hour Directional Classification Count

PO Box 1178  
Corona, CA 92878  
Phone: (951) 268-6268  
email: counts@countsunlimited.com

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CNP001C  
Site Code: 200-24299B

## Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/26/24	0	2	0	0	0	0	0	0	0	0	0	0	0	2
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:00	0	3	3	0	3	0	0	1	0	0	0	0	0	10
06:00	0	8	8	0	12	0	0	1	0	0	0	0	0	29
07:00	0	4	4	0	13	0	0	1	0	0	0	0	0	22
08:00	1	10	5	0	11	0	0	0	0	0	0	0	0	27
09:00	0	8	5	0	8	0	0	<b>5</b>	0	0	0	0	0	26
10:00	1	<b>14</b>	<b>10</b>	0	14	<b>1</b>	0	1	0	0	0	0	0	41
11:00	<b>3</b>	12	7	0	<b>17</b>	1	0	3	0	0	0	0	0	<b>43</b>
12 PM	0	20	10	1	22	0	0	1	0	0	0	0	0	54
13:00	<b>1</b>	22	15	0	23	0	0	3	0	0	0	0	0	64
14:00	0	66	40	<b>3</b>	31	0	0	4	0	0	0	0	0	144
15:00	0	87	<b>43</b>	0	<b>38</b>	0	0	<b>5</b>	0	0	0	0	0	<b>173</b>
16:00	1	<b>95</b>	32	1	34	0	0	2	0	0	0	0	0	165
17:00	0	48	27	0	27	0	0	4	0	0	0	0	0	106
18:00	1	30	11	0	5	0	0	0	0	0	0	0	0	47
19:00	0	9	3	0	5	0	0	0	0	0	0	0	0	17
20:00	0	10	5	0	1	0	0	1	0	0	0	0	0	17
21:00	0	5	2	0	0	0	0	0	0	0	0	0	0	7
22:00	0	5	1	0	1	0	0	0	0	0	0	0	0	7
23:00	0	1	0	0	1	0	0	0	0	0	0	0	0	2
Total	8	460	231	5	266	2	0	32	0	0	0	0	0	1004
Percent	0.8%	45.8%	23.0%	0.5%	26.5%	0.2%	0.0%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	10:00	10:00		11:00	10:00		09:00						11:00
Vol.	3	14	10		17	1		5						43
PM Peak	13:00	16:00	15:00	14:00	15:00			15:00						15:00
Vol.	1	95	43	3	38			5						173

# Counts Unlimited, Inc.

County of Napa  
State Route 128  
E/ Promise Wine Winery Driveway  
48 Hour Directional Classification Count

PO Box 1178  
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CNP001C  
Site Code: 200-24299B

## Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/27/24	0	2	0	0	0	0	0	0	0	0	0	0	0	2
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	1	0	0	1	0	0	0	0	0	2
05:00	0	3	0	0	2	0	0	2	0	0	0	0	0	7
06:00	0	5	4	0	5	0	0	2	0	0	0	0	0	16
07:00	0	5	8	0	1	0	0	1	0	0	0	0	0	15
08:00	0	8	3	0	7	0	0	0	0	0	0	0	0	18
09:00	4	18	3	0	1	0	0	1	0	0	0	0	0	27
10:00	2	19	11	0	3	0	0	1	0	0	0	0	0	36
11:00	1	21	15	0	4	0	0	0	0	0	0	0	0	41
12 PM	1	21	6	1	7	0	0	3	0	0	0	0	0	39
13:00	3	21	13	0	8	0	0	0	0	0	0	0	0	45
14:00	4	44	16	0	6	0	0	0	0	0	0	0	0	70
15:00	1	37	12	0	7	0	0	2	0	0	0	0	0	59
16:00	0	52	18	0	7	0	0	0	0	0	0	0	0	77
17:00	0	38	6	0	2	0	0	1	0	0	0	0	0	47
18:00	0	22	7	0	4	0	0	0	0	0	0	0	0	33
19:00	0	18	8	0	2	0	0	0	0	0	0	0	0	28
20:00	0	5	6	0	1	0	0	0	0	0	0	0	0	12
21:00	0	5	1	0	2	0	0	1	0	0	0	0	0	9
22:00	0	5	4	0	0	0	0	0	0	0	0	0	0	9
23:00	1	2	0	0	2	0	0	0	0	0	0	0	0	5
Total	17	352	141	1	72	0	0	15	0	0	0	0	0	598
Percent	2.8%	58.9%	23.6%	0.2%	12.0%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	11:00	11:00		08:00			05:00						11:00
Vol.	4	21	15		7			2						41
PM Peak	14:00	16:00	16:00	12:00	13:00			12:00						16:00
Vol.	4	52	18	1	8			3						77
Grand Total	25	812	372	6	338	2	0	47	0	0	0	0	0	1602
Percent	1.6%	50.7%	23.2%	0.4%	21.1%	0.1%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	

# Counts Unlimited, Inc.

County of Napa  
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48 Hour Directional Classification Count

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CNP001C  
Site Code: 200-24299B

## Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/26/24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	1	0	0	1	0	0	0	0	0	0	0	0	2
05:00	0	16	8	0	1	0	0	0	0	0	0	0	0	25
06:00	0	18	11	0	13	0	0	0	0	0	0	0	0	42
07:00	0	13	7	0	11	0	0	0	0	0	0	0	0	31
08:00	1	25	10	0	4	0	0	2	0	0	0	0	0	42
09:00	0	17	5	0	15	0	0	2	0	0	0	0	0	39
10:00	0	13	6	1	11	0	0	5	1	0	0	0	0	37
11:00	2	8	12	0	9	0	0	2	0	0	0	0	0	33
12 PM	1	17	7	0	9	0	0	1	0	0	0	0	0	35
13:00	0	22	9	0	5	0	0	2	0	0	0	0	0	38
14:00	0	16	7	1	9	0	0	3	0	0	0	0	0	36
15:00	0	20	13	1	9	0	0	1	0	0	0	0	0	44
16:00	0	22	17	1	6	0	0	1	0	0	0	0	0	47
17:00	0	16	2	0	6	0	0	3	0	0	0	0	0	27
18:00	0	10	7	0	4	0	0	1	0	0	0	0	0	22
19:00	0	4	0	0	3	0	0	0	0	0	0	0	0	7
20:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
21:00	0	3	0	0	1	0	0	1	0	0	0	0	0	5
22:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
23:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	4	249	122	4	117	0	0	24	1	0	0	0	0	521
Percent	0.8%	47.8%	23.4%	0.8%	22.5%	0.0%	0.0%	4.6%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	08:00	11:00	10:00	09:00			10:00	10:00					06:00
Vol.	2	25	12	1	15			5	1					42
PM Peak	12:00	13:00	16:00	14:00	12:00			14:00						16:00
Vol.	1	22	17	1	9			3						47

# Counts Unlimited, Inc.

County of Napa  
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E/ Promise Wine Winery Driveway  
48 Hour Directional Classification Count

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CNP001C  
Site Code: 200-24299B

## Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/27/24	0	1	0	0	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	2	0	0	0	0	0	0	0	0	2
05:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
06:00	0	6	1	0	3	0	0	0	0	0	0	0	0	10
07:00	0	10	6	0	0	0	0	1	0	0	0	0	0	17
08:00	0	17	10	0	3	0	0	1	0	0	0	0	0	31
09:00	0	26	6	0	<b>6</b>	0	0	0	0	0	0	0	0	38
10:00	<b>10</b>	<b>36</b>	<b>13</b>	<b>1</b>	6	0	0	<b>2</b>	0	0	0	0	0	<b>68</b>
11:00	5	<b>41</b>	8	1	5	0	0	0	0	0	0	0	0	60
12 PM	<b>1</b>	<b>55</b>	11	0	3	0	0	0	0	0	0	0	0	70
13:00	1	53	16	0	4	0	0	0	0	0	0	0	0	<b>74</b>
14:00	1	41	<b>17</b>	<b>1</b>	<b>10</b>	0	0	0	0	0	0	0	0	70
15:00	0	46	6	0	5	0	0	1	0	0	0	0	0	58
16:00	1	27	7	0	2	0	0	<b>5</b>	0	0	0	0	0	42
17:00	1	16	3	0	3	0	0	3	0	0	0	0	0	26
18:00	0	8	6	1	3	0	0	1	0	0	0	0	0	19
19:00	0	10	6	0	3	0	0	0	0	0	0	0	0	19
20:00	0	10	1	0	1	0	0	1	0	0	0	0	0	13
21:00	0	10	3	0	1	0	0	0	0	0	0	0	0	14
22:00	0	4	4	0	2	0	0	1	0	0	0	0	0	11
23:00	0	4	1	0	1	0	0	0	0	0	0	0	0	6
Total	20	422	126	4	63	0	0	16	0	0	0	0	0	651
Percent	3.1%	64.8%	19.4%	0.6%	9.7%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	11:00	10:00	10:00	09:00			10:00						10:00
Vol.	10	41	13	1	6			2						68
PM Peak	12:00	12:00	14:00	14:00	14:00			16:00						13:00
Vol.	1	55	17	1	10			5						74
Grand Total	24	671	248	8	180	0	0	40	1	0	0	0	0	1172
Percent	2.0%	57.3%	21.2%	0.7%	15.4%	0.0%	0.0%	3.4%	0.1%	0.0%	0.0%	0.0%	0.0%	



# Counts Unlimited, Inc.

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County of Napa  
State Route 128  
E/ Promise Wine Winery Driveway  
48 Hour Directional Classification Count

PO Box 1178  
Corona, CA 92878  
Phone: (951) 268-6268  
email: counts@countsunlimited.com

CNP001C  
Site Code: 200-24299B

## Eastbound, Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/26/24	0	2	0	0	0	0	0	0	0	0	0	0	0	2
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	2	0	0	1	0	0	0	0	0	0	0	0	3
05:00	0	19	11	0	4	0	0	1	0	0	0	0	0	35
06:00	0	26	<b>19</b>	0	25	0	0	1	0	0	0	0	0	71
07:00	0	17	11	0	24	0	0	1	0	0	0	0	0	53
08:00	2	<b>35</b>	15	0	15	0	0	2	0	0	0	0	0	69
09:00	0	25	10	0	23	0	0	<b>7</b>	0	0	0	0	0	65
10:00	1	27	16	<b>1</b>	25	<b>1</b>	0	6	<b>1</b>	0	0	0	0	<b>78</b>
11:00	<b>5</b>	20	19	0	<b>26</b>	1	0	5	0	0	0	0	0	76
12 PM	<b>1</b>	37	17	1	31	0	0	2	0	0	0	0	0	89
13:00	1	44	24	0	28	0	0	5	0	0	0	0	0	102
14:00	0	82	47	<b>4</b>	40	0	0	<b>7</b>	0	0	0	0	0	180
15:00	0	107	<b>56</b>	1	<b>47</b>	0	0	6	0	0	0	0	0	<b>217</b>
16:00	1	<b>117</b>	49	2	40	0	0	3	0	0	0	0	0	212
17:00	0	64	29	0	33	0	0	7	0	0	0	0	0	133
18:00	1	40	18	0	9	0	0	1	0	0	0	0	0	69
19:00	0	13	3	0	8	0	0	0	0	0	0	0	0	24
20:00	0	14	6	0	1	0	0	1	0	0	0	0	0	22
21:00	0	8	2	0	1	0	0	1	0	0	0	0	0	12
22:00	0	8	1	0	1	0	0	0	0	0	0	0	0	10
23:00	0	2	0	0	1	0	0	0	0	0	0	0	0	3
Total	12	709	353	9	383	2	0	56	1	0	0	0	0	1525
Percent	0.8%	46.5%	23.1%	0.6%	25.1%	0.1%	0.0%	3.7%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	08:00	06:00	10:00	11:00	10:00		09:00	10:00					10:00
Vol.	5	35	19	1	26	1		7	1					78
PM Peak	12:00	16:00	15:00	14:00	15:00			14:00						15:00
Vol.	1	117	56	4	47			7						217

# Counts Unlimited, Inc.

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48 Hour Directional Classification Count

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CNP001C  
Site Code: 200-24299B

## Eastbound, Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/27/24	0	3	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	3	0	0	1	0	0	0	0	0	4
05:00	0	4	1	0	2	0	0	2	0	0	0	0	0	9
06:00	0	11	5	0	8	0	0	2	0	0	0	0	0	26
07:00	0	15	14	0	1	0	0	2	0	0	0	0	0	32
08:00	0	25	13	0	<b>10</b>	0	0	1	0	0	0	0	0	49
09:00	4	44	9	0	7	0	0	1	0	0	0	0	0	65
10:00	<b>12</b>	55	<b>24</b>	<b>1</b>	9	0	0	<b>3</b>	0	0	0	0	0	<b>104</b>
11:00	6	<b>62</b>	23	1	9	0	0	0	0	0	0	0	0	101
12 PM	2	76	17	<b>1</b>	10	0	0	3	0	0	0	0	0	109
13:00	4	74	29	0	12	0	0	0	0	0	0	0	0	119
14:00	<b>5</b>	<b>85</b>	<b>33</b>	1	<b>16</b>	0	0	0	0	0	0	0	0	<b>140</b>
15:00	1	83	18	0	12	0	0	3	0	0	0	0	0	117
16:00	1	79	25	0	9	0	0	<b>5</b>	0	0	0	0	0	119
17:00	1	54	9	0	5	0	0	4	0	0	0	0	0	73
18:00	0	30	13	1	7	0	0	1	0	0	0	0	0	52
19:00	0	28	14	0	5	0	0	0	0	0	0	0	0	47
20:00	0	15	7	0	2	0	0	1	0	0	0	0	0	25
21:00	0	15	4	0	3	0	0	1	0	0	0	0	0	23
22:00	0	9	8	0	2	0	0	1	0	0	0	0	0	20
23:00	1	6	1	0	3	0	0	0	0	0	0	0	0	11
Total	37	774	267	5	135	0	0	31	0	0	0	0	0	1249
Percent	3.0%	62.0%	21.4%	0.4%	10.8%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	11:00	10:00	10:00	08:00			10:00						10:00
Vol.	12	62	24	1	10			3						104
PM Peak	14:00	14:00	14:00	12:00	14:00			16:00						14:00
Vol.	5	85	33	1	16			5						140
Grand Total	49	1483	620	14	518	2	0	87	1	0	0	0	0	2774
Percent	1.8%	53.5%	22.4%	0.5%	18.7%	0.1%	0.0%	3.1%	0.0%	0.0%	0.0%	0.0%	0.0%	

# Counts Unlimited, Inc.

County of Napa  
State Route 28  
E/ Promise Wine Winery Driveway  
48 Hour Directional Speed Survey

PO Box 1178  
Corona, CA 92878  
Phone: (951) 268-6268  
email: counts@countsunlimited.com

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CNP001S  
Site Code: 200-24299A

## Eastbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
04/19/24	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
05:00	0	0	0	0	0	2	5	2	1	0	0	0	0	0	10
06:00	0	0	0	0	0	6	8	15	0	0	0	0	0	0	29
07:00	0	0	0	1	0	6	8	4	1	1	1	0	0	0	22
08:00	4	0	0	0	0	8	12	1	1	0	0	0	0	0	26
09:00	0	0	0	0	6	12	7	1	0	0	0	0	0	0	26
10:00	0	1	0	1	6	11	13	8	1	0	0	0	0	0	41
11:00	2	1	3	1	2	11	17	4	2	0	0	0	0	0	43
12 PM	0	0	0	0	3	12	21	12	6	0	0	0	0	0	54
13:00	1	0	1	1	2	16	27	13	3	0	0	0	0	0	64
14:00	0	0	0	0	0	22	69	40	9	3	1	0	0	0	144
15:00	0	0	0	0	4	35	68	51	11	4	0	0	0	0	173
16:00	1	0	0	0	5	22	78	51	6	1	1	0	0	0	165
17:00	0	0	0	0	1	20	42	27	12	4	0	0	0	0	106
18:00	1	0	1	0	0	7	23	8	6	0	1	0	0	0	47
19:00	0	0	0	0	0	3	8	5	0	1	0	0	0	0	17
20:00	0	0	0	0	2	9	4	2	0	0	0	0	0	0	17
21:00	0	0	0	0	0	3	1	1	1	1	0	0	0	0	7
22:00	0	0	0	0	0	3	2	2	0	0	0	0	0	0	7
23:00	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
Total	9	2	5	4	31	209	416	247	61	15	4	0	0	0	1003

Daily  
15th Percentile : 37 MPH  
50th Percentile : 42 MPH  
85th Percentile : 48 MPH  
95th Percentile : 52 MPH

Statistics  
Mean Speed(Average) : 43 MPH  
10 MPH Pace Speed : 41-50 MPH  
Number in Pace : 663  
Percent in Pace : 66.1%  
Number of Vehicles > 55 MPH : 19  
Percent of Vehicles > 55 MPH : 1.9%

# Counts Unlimited, Inc.

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County of Napa  
State Route 28  
E/ Promise Wine Winery Driveway  
48 Hour Directional Speed Survey

PO Box 1178  
Corona, CA 92878  
Phone: (951) 268-6268  
email: counts@countsunlimited.com

CNP001S  
Site Code: 200-24299A

## Eastbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
04/20/24	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
01:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
05:00	0	0	0	0	0	1	4	1	1	0	0	0	0	0	7
06:00	0	0	0	0	0	4	8	3	1	0	0	0	0	0	16
07:00	0	0	0	0	1	7	4	2	1	0	0	0	0	0	15
08:00	0	0	0	0	1	1	11	5	0	0	0	0	0	0	18
09:00	1	2	2	1	2	4	10	4	1	0	0	0	0	0	27
10:00	0	3	1	0	2	8	11	3	1	2	3	1	1	0	36
11:00	0	1	0	0	2	14	13	10	1	0	0	0	0	0	41
12 PM	0	1	2	1	1	15	11	6	2	0	0	0	0	0	39
13:00	0	4	0	1	4	11	15	9	1	0	0	0	0	0	45
14:00	5	0	0	0	2	21	27	12	1	2	0	0	0	0	70
15:00	0	0	0	0	3	11	30	11	4	0	0	0	0	0	59
16:00	0	0	0	0	4	20	38	11	3	0	1	0	0	0	77
17:00	0	1	0	0	8	11	17	6	3	0	1	0	0	0	47
18:00	0	0	0	0	1	5	17	5	4	1	0	0	0	0	33
19:00	0	0	0	0	0	6	18	4	0	0	0	0	0	0	28
20:00	1	0	0	1	0	5	4	1	0	0	0	0	0	0	12
21:00	0	0	0	0	1	3	4	0	0	1	0	0	0	0	9
22:00	1	1	0	0	0	4	2	1	0	0	0	0	0	0	9
23:00	1	0	0	0	0	4	0	0	0	0	0	0	0	0	5
Total	9	13	5	4	33	157	245	95	24	6	5	1	1	0	598

Daily  
15th Percentile : 35 MPH  
50th Percentile : 41 MPH  
85th Percentile : 47 MPH  
95th Percentile : 51 MPH

Statistics  
Mean Speed(Average) : 41 MPH  
10 MPH Pace Speed : 36-45 MPH  
Number in Pace : 402  
Percent in Pace : 67.2%  
Number of Vehicles > 55 MPH : 13  
Percent of Vehicles > 55 MPH : 2.2%

# Counts Unlimited, Inc.

County of Napa  
State Route 28  
E/ Promise Wine Winery Driveway  
48 Hour Directional Speed Survey

PO Box 1178  
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CNP001S  
Site Code: 200-24299A

## Westbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
04/19/24	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	3	1	0	0	0	0	0	0	0	4
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	1	2	0	0	0	0	0	0	0	3
05:00	0	0	0	0	0	0	9	2	1	0	1	0	0	0	13
06:00	0	0	0	0	2	8	19	23	4	2	0	0	0	0	58
07:00	0	0	0	0	0	7	12	10	0	0	0	0	0	0	29
08:00	1	1	0	0	4	9	21	7	2	0	0	0	0	0	45
09:00	0	0	1	1	9	10	2	2	0	0	0	0	0	0	25
10:00	1	0	0	4	13	24	2	0	0	0	0	0	0	0	44
11:00	1	0	0	1	4	13	13	5	0	0	0	0	0	0	37
12 PM	0	0	0	1	2	17	15	3	0	0	0	0	0	0	38
13:00	0	0	0	1	6	19	5	3	1	0	0	0	0	0	35
14:00	0	0	0	1	10	15	14	2	0	0	0	0	0	0	42
15:00	0	0	0	0	4	9	16	4	0	0	0	0	0	0	33
16:00	0	0	0	0	3	14	13	5	0	0	0	0	0	0	35
17:00	0	0	0	0	7	12	20	3	3	0	0	0	0	0	45
18:00	0	0	0	0	3	3	3	0	0	1	0	0	0	0	10
19:00	0	0	0	0	0	6	5	0	0	0	0	0	0	0	11
20:00	0	0	0	0	1	1	0	1	0	0	0	0	0	0	3
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	1	3	0	0	0	0	0	0	0	0	4
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	1	1	9	69	175	172	70	11	3	1	0	0	0	515

Daily  
15th Percentile : 34 MPH  
50th Percentile : 39 MPH  
85th Percentile : 45 MPH  
95th Percentile : 49 MPH

Statistics  
Mean Speed(Average) : 40 MPH  
10 MPH Pace Speed : 36-45 MPH  
Number in Pace : 347  
Percent in Pace : 67.4%  
Number of Vehicles > 55 MPH : 4  
Percent of Vehicles > 55 MPH : 0.8%

# Counts Unlimited, Inc.

County of Napa  
State Route 28  
E/ Promise Wine Winery Driveway  
48 Hour Directional Speed Survey

PO Box 1178  
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CNP001S  
Site Code: 200-24299A

## Westbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
04/20/24	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
01:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
05:00	0	0	0	0	1	1	1	1	0	0	0	0	0	0	4
06:00	0	0	0	0	0	1	4	3	0	0	0	0	0	0	8
07:00	0	0	0	2	1	4	3	4	0	0	0	0	0	0	14
08:00	0	0	0	0	2	6	12	6	3	0	0	0	0	0	29
09:00	0	0	1	1	0	12	5	1	0	0	0	0	0	0	20
10:00	0	0	1	1	4	22	12	1	0	1	0	0	0	0	42
11:00	0	2	1	3	24	35	4	1	0	0	0	0	0	0	70
12 PM	0	0	0	8	31	56	17	4	0	0	0	0	0	0	116
13:00	0	0	1	7	31	44	18	2	0	0	0	0	0	0	103
14:00	0	0	2	4	20	31	17	4	0	0	0	0	0	0	78
15:00	0	0	0	1	23	27	2	0	1	0	0	0	0	0	54
16:00	0	0	0	1	15	20	14	2	1	1	0	0	0	0	54
17:00	1	0	0	1	12	21	10	2	1	0	0	0	0	0	48
18:00	0	0	2	1	5	16	4	0	1	0	0	0	0	0	29
19:00	0	0	0	0	6	3	5	2	0	0	0	0	0	0	16
20:00	0	1	0	1	5	1	3	0	0	0	0	0	0	0	11
21:00	0	0	0	0	3	2	5	0	0	0	0	0	0	0	10
22:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
23:00	0	0	0	0	1	2	0	0	0	0	0	0	0	0	3
Total	3	3	8	31	185	307	137	33	7	2	0	0	0	0	716

Daily  
15th Percentile : 31 MPH  
50th Percentile : 37 MPH  
85th Percentile : 42 MPH  
95th Percentile : 45 MPH

Statistics  
Mean Speed(Average) : 38 MPH  
10 MPH Pace Speed : 31-40 MPH  
Number in Pace : 492  
Percent in Pace : 68.7%  
Number of Vehicles > 55 MPH : 2  
Percent of Vehicles > 55 MPH : 0.3%

# Counts Unlimited, Inc.

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County of Napa  
State Route 28  
E/ Promise Wine Winery Driveway  
48 Hour Directional Speed Survey

PO Box 1178  
Corona, CA 92878  
Phone: (951) 268-6268  
email: counts@countsunlimited.com

CNP001S  
Site Code: 200-24299A

## Eastbound, Westbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
04/19/24	0	0	0	0	0	1	1	0	1	0	0	0	0	0	3
01:00	0	0	0	0	0	3	1	0	0	0	0	0	0	0	4
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	1	3	0	0	0	0	0	0	0	4
05:00	0	0	0	0	0	2	14	4	2	0	1	0	0	0	23
06:00	0	0	0	0	2	14	27	38	4	2	0	0	0	0	87
07:00	0	0	0	1	0	13	20	14	1	1	1	0	0	0	51
08:00	5	1	0	0	4	17	33	8	3	0	0	0	0	0	71
09:00	0	0	1	1	15	22	9	3	0	0	0	0	0	0	51
10:00	1	1	0	5	19	35	15	8	1	0	0	0	0	0	85
11:00	3	1	3	2	6	24	30	9	2	0	0	0	0	0	80
12 PM	0	0	0	1	5	29	36	15	6	0	0	0	0	0	92
13:00	1	0	1	2	8	35	32	16	4	0	0	0	0	0	99
14:00	0	0	0	1	10	37	83	42	9	3	1	0	0	0	186
15:00	0	0	0	0	8	44	84	55	11	4	0	0	0	0	206
16:00	1	0	0	0	8	36	91	56	6	1	1	0	0	0	200
17:00	0	0	0	0	8	32	62	30	15	4	0	0	0	0	151
18:00	1	0	1	0	3	10	26	8	6	1	1	0	0	0	57
19:00	0	0	0	0	0	9	13	5	0	1	0	0	0	0	28
20:00	0	0	0	0	3	10	4	3	0	0	0	0	0	0	20
21:00	0	0	0	0	0	3	1	1	1	1	0	0	0	0	7
22:00	0	0	0	0	1	6	2	2	0	0	0	0	0	0	11
23:00	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
Total	12	3	6	13	100	384	588	317	72	18	5	0	0	0	1518

Daily  
15th Percentile : 36 MPH  
50th Percentile : 42 MPH  
85th Percentile : 47 MPH  
95th Percentile : 51 MPH

Statistics  
Mean Speed(Average) : 42 MPH  
10 MPH Pace Speed : 36-45 MPH  
Number in Pace : 972  
Percent in Pace : 64.0%  
Number of Vehicles > 55 MPH : 23  
Percent of Vehicles > 55 MPH : 1.5%

# Counts Unlimited, Inc.

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County of Napa  
State Route 28  
E/ Promise Wine Winery Driveway  
48 Hour Directional Speed Survey

PO Box 1178  
Corona, CA 92878  
Phone: (951) 268-6268  
email: counts@countsunlimited.com

CNP001S  
Site Code: 200-24299A

## Eastbound, Westbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
04/20/24	2	0	0	0	0	0	1	1	0	0	0	0	0	0	4
01:00	0	0	0	0	2	1	0	0	0	0	0	0	0	0	3
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	3	1	0	0	0	0	0	0	0	4
05:00	0	0	0	0	1	2	5	2	1	0	0	0	0	0	11
06:00	0	0	0	0	0	5	12	6	1	0	0	0	0	0	24
07:00	0	0	0	2	2	11	7	6	1	0	0	0	0	0	29
08:00	0	0	0	0	3	7	23	11	3	0	0	0	0	0	47
09:00	1	2	3	2	2	16	15	5	1	0	0	0	0	0	47
10:00	0	3	2	1	6	30	23	4	1	3	3	1	1	0	78
11:00	0	3	1	3	26	49	17	11	1	0	0	0	0	0	111
12 PM	0	1	2	9	32	71	28	10	2	0	0	0	0	0	155
13:00	0	4	1	8	35	55	33	11	1	0	0	0	0	0	148
14:00	5	0	2	4	22	52	44	16	1	2	0	0	0	0	148
15:00	0	0	0	1	26	38	32	11	5	0	0	0	0	0	113
16:00	0	0	0	1	19	40	52	13	4	1	1	0	0	0	131
17:00	1	1	0	1	20	32	27	8	4	0	1	0	0	0	95
18:00	0	0	2	1	6	21	21	5	5	1	0	0	0	0	62
19:00	0	0	0	0	6	9	23	6	0	0	0	0	0	0	44
20:00	1	1	0	2	5	6	7	1	0	0	0	0	0	0	23
21:00	0	0	0	0	4	5	9	0	0	1	0	0	0	0	19
22:00	1	1	0	0	0	5	2	1	0	0	0	0	0	0	10
23:00	1	0	0	0	1	6	0	0	0	0	0	0	0	0	8
Total	12	16	13	35	218	464	382	128	31	8	5	1	1	0	1314

Daily  
15th Percentile : 32 MPH  
50th Percentile : 38 MPH  
85th Percentile : 44 MPH  
95th Percentile : 49 MPH

Statistics  
Mean Speed(Average) : 39 MPH  
10 MPH Pace Speed : 36-45 MPH  
Number in Pace : 846  
Percent in Pace : 64.4%  
Number of Vehicles > 55 MPH : 15  
Percent of Vehicles > 55 MPH : 1.1%



# Counts Unlimited, Inc.

Page 1

County of Napa  
State Route 28  
E/ Promise Wine Winery Driveway  
48 Hour Directional Speed Survey

PO Box 1178  
Corona, CA 92878  
Phone: (951) 268-6268  
email: counts@countsunlimited.com

CNP001S  
Site Code: 200-24299B

## Eastbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
04/26/24	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
01:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
04:00	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
05:00	0	0	0	0	1	2	6	1	1	0	0	0	0	0	11
06:00	0	0	0	0	0	6	11	11	2	0	0	0	0	0	30
07:00	0	0	0	0	0	5	6	4	0	0	0	0	0	0	15
08:00	1	0	0	0	1	5	9	7	1	0	0	0	0	0	24
09:00	0	0	0	0	1	3	14	8	2	1	0	0	0	0	29
10:00	0	0	0	0	2	11	18	12	4	0	0	0	0	0	47
11:00	2	0	0	0	1	9	17	8	2	0	0	0	0	0	39
12 PM	0	0	0	0	1	10	30	14	2	0	0	0	0	0	57
13:00	1	0	0	0	1	13	26	12	2	1	0	0	0	0	56
14:00	5	1	0	0	4	20	34	15	4	0	0	0	0	0	83
15:00	0	0	0	0	3	24	58	48	9	1	0	0	0	0	143
16:00	1	0	0	0	1	24	67	36	11	0	0	0	0	0	140
17:00	0	0	0	0	2	13	30	21	2	0	0	0	0	0	68
18:00	0	0	0	0	1	3	13	8	5	1	0	0	0	0	31
19:00	0	0	0	0	1	5	7	8	1	0	0	0	0	0	22
20:00	0	0	0	0	0	0	1	4	0	0	1	0	0	0	6
21:00	0	0	0	0	1	4	5	3	0	0	0	0	0	0	13
22:00	0	0	0	0	0	4	3	1	0	0	0	0	0	0	8
23:00	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Total	10	1	0	0	22	163	357	223	49	4	1	0	0	0	830

Daily  
15th Percentile : 37 MPH  
50th Percentile : 43 MPH  
85th Percentile : 48 MPH  
95th Percentile : 51 MPH

Statistics  
Mean Speed(Average) : 43 MPH  
10 MPH Pace Speed : 41-50 MPH  
Number in Pace : 580  
Percent in Pace : 69.9%  
Number of Vehicles > 55 MPH : 5  
Percent of Vehicles > 55 MPH : 0.6%

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County of Napa  
State Route 28  
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email: counts@countsunlimited.com

CNP001S  
Site Code: 200-24299B

## Eastbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
04/27/24	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	1	0	1	1	0	0	0	0	0	3
06:00	0	0	0	0	0	1	6	1	0	0	0	0	0	0	8
07:00	0	3	1	0	3	3	6	5	0	0	0	0	0	0	21
08:00	0	1	0	0	0	3	8	11	3	0	0	0	0	0	26
09:00	0	1	0	1	0	14	7	9	2	0	0	0	0	0	34
10:00	1	2	2	0	7	9	12	1	0	0	0	0	0	0	34
11:00	0	2	0	0	0	11	12	5	0	1	0	0	0	0	31
12 PM	0	0	1	0	0	9	18	11	1	0	0	0	0	0	40
13:00	0	0	0	0	0	12	19	9	4	1	0	0	0	0	45
14:00	0	0	1	0	2	28	16	11	3	1	0	0	0	0	62
15:00	0	0	0	0	3	16	25	13	3	0	0	0	0	0	60
16:00	0	0	0	0	0	15	24	11	4	0	0	0	0	0	54
17:00	0	0	0	1	0	10	21	6	2	0	0	0	0	0	40
18:00	0	0	0	0	1	6	15	4	1	0	0	0	0	0	27
19:00	0	0	0	0	0	3	4	2	2	0	0	0	0	0	11
20:00	0	0	0	0	1	3	6	1	0	1	0	0	0	0	12
21:00	0	0	0	0	0	5	2	4	0	0	0	0	0	0	11
22:00	0	0	0	0	1	0	2	2	0	0	0	0	0	0	5
23:00	0	0	0	0	0	3	2	0	1	0	0	0	0	0	6
Total	1	9	5	2	18	152	207	107	27	4	0	0	0	0	532

Daily  
15th Percentile : 36 MPH  
50th Percentile : 41 MPH  
85th Percentile : 47 MPH  
95th Percentile : 50 MPH

Statistics  
Mean Speed(Average) : 42 MPH  
10 MPH Pace Speed : 36-45 MPH  
Number in Pace : 359  
Percent in Pace : 67.5%  
Number of Vehicles > 55 MPH : 4  
Percent of Vehicles > 55 MPH : 0.8%

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Site Code: 200-24299B

## Westbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
04/26/24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
05:00	0	0	0	0	1	4	8	7	4	0	0	1	0	0	25
06:00	0	0	0	0	1	0	12	20	8	0	0	1	0	0	42
07:00	0	0	0	0	0	5	9	11	5	1	0	0	0	0	31
08:00	0	1	0	1	3	6	19	8	2	2	0	0	0	0	42
09:00	0	0	0	0	5	7	17	6	4	0	0	0	0	0	39
10:00	0	0	0	3	4	16	9	5	0	0	0	0	0	0	37
11:00	0	0	0	0	2	12	8	8	3	0	0	0	0	0	33
12 PM	0	0	0	0	11	13	6	3	2	0	0	0	0	0	35
13:00	0	0	0	1	9	16	9	3	0	0	0	0	0	0	38
14:00	0	1	0	0	1	15	16	3	0	0	0	0	0	0	36
15:00	0	0	1	1	1	21	15	4	1	0	0	0	0	0	44
16:00	0	0	0	0	4	15	13	5	9	2	0	0	0	0	48
17:00	0	0	0	0	7	9	8	3	0	0	0	0	0	0	27
18:00	0	0	0	1	7	2	4	7	1	0	0	0	0	0	22
19:00	0	0	0	0	0	1	3	1	1	1	0	0	0	0	7
20:00	0	0	0	0	2	0	3	0	0	0	0	0	0	0	5
21:00	0	0	0	0	0	2	2	0	1	0	0	0	0	0	5
22:00	0	0	0	0	1	1	1	0	0	0	0	0	0	0	3
23:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	0	2	1	7	59	146	164	94	41	6	0	2	0	0	522

Daily  
15th Percentile : 35 MPH  
50th Percentile : 41 MPH  
85th Percentile : 48 MPH  
95th Percentile : 52 MPH

Statistics  
Mean Speed(Average) : 42 MPH  
10 MPH Pace Speed : 36-45 MPH  
Number in Pace : 310  
Percent in Pace : 59.4%  
Number of Vehicles > 55 MPH : 8  
Percent of Vehicles > 55 MPH : 1.5%

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CNP001S  
Site Code: 200-24299B

## Westbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
04/27/24	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
05:00	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2
06:00	0	0	0	0	1	0	3	3	2	1	0	0	0	0	10
07:00	0	0	0	0	0	5	4	5	2	1	0	0	0	0	17
08:00	0	0	0	0	0	5	15	9	2	0	0	0	0	0	31
09:00	0	0	0	1	2	7	20	5	3	0	0	0	0	0	38
10:00	0	0	4	12	16	21	10	4	1	1	0	0	0	0	69
11:00	0	0	1	2	14	25	12	6	0	0	0	0	0	0	60
12 PM	0	0	0	1	15	29	21	4	0	0	0	0	0	0	70
13:00	0	0	1	2	20	28	15	7	0	1	0	0	0	0	74
14:00	0	0	0	2	10	36	18	4	0	0	0	0	0	0	70
15:00	0	0	0	0	5	21	27	4	1	0	0	0	0	0	58
16:00	0	0	0	0	12	24	5	0	1	0	0	0	0	0	42
17:00	0	0	1	0	3	12	7	3	0	0	0	0	0	0	26
18:00	0	0	0	1	2	4	9	2	1	0	0	0	0	0	19
19:00	0	0	0	0	0	7	6	4	2	0	0	0	0	0	19
20:00	0	0	0	0	7	1	4	1	0	0	0	0	0	0	13
21:00	0	0	0	1	3	6	1	1	2	0	0	0	0	0	14
22:00	0	0	0	0	2	2	6	1	0	0	0	0	0	0	11
23:00	0	0	0	0	0	6	0	0	0	0	0	0	0	0	6
Total	0	0	7	22	112	239	185	64	18	4	1	0	0	0	652

Daily  
15th Percentile : 33 MPH  
50th Percentile : 38 MPH  
85th Percentile : 44 MPH  
95th Percentile : 49 MPH

Statistics  
Mean Speed(Average) : 40 MPH  
10 MPH Pace Speed : 36-45 MPH  
Number in Pace : 424  
Percent in Pace : 65.0%  
Number of Vehicles > 55 MPH : 5  
Percent of Vehicles > 55 MPH : 0.8%

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## Eastbound, Westbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
04/26/24	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
01:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
04:00	0	0	0	0	1	1	1	1	0	0	0	0	0	0	4
05:00	0	0	0	0	2	6	14	8	5	0	0	1	0	0	36
06:00	0	0	0	0	1	6	23	31	10	0	0	1	0	0	72
07:00	0	0	0	0	0	10	15	15	5	1	0	0	0	0	46
08:00	1	1	0	1	4	11	28	15	3	2	0	0	0	0	66
09:00	0	0	0	0	6	10	31	14	6	1	0	0	0	0	68
10:00	0	0	0	3	6	27	27	17	4	0	0	0	0	0	84
11:00	2	0	0	0	3	21	25	16	5	0	0	0	0	0	72
12 PM	0	0	0	0	12	23	36	17	4	0	0	0	0	0	92
13:00	1	0	0	1	10	29	35	15	2	1	0	0	0	0	94
14:00	5	2	0	0	5	35	50	18	4	0	0	0	0	0	119
15:00	0	0	1	1	4	45	73	52	10	1	0	0	0	0	187
16:00	1	0	0	0	5	39	80	41	20	2	0	0	0	0	188
17:00	0	0	0	0	9	22	38	24	2	0	0	0	0	0	95
18:00	0	0	0	1	8	5	17	15	6	1	0	0	0	0	53
19:00	0	0	0	0	1	6	10	9	2	1	0	0	0	0	29
20:00	0	0	0	0	2	0	4	4	0	0	1	0	0	0	11
21:00	0	0	0	0	1	6	7	3	1	0	0	0	0	0	18
22:00	0	0	0	0	1	5	4	1	0	0	0	0	0	0	11
23:00	0	0	0	0	0	1	1	0	1	0	0	0	0	0	3
Total	10	3	1	7	81	309	521	317	90	10	1	2	0	0	1352

Daily  
15th Percentile : 36 MPH  
50th Percentile : 42 MPH  
85th Percentile : 48 MPH  
95th Percentile : 51 MPH

Statistics  
Mean Speed(Average) : 43 MPH  
10 MPH Pace Speed : 41-50 MPH  
Number in Pace : 838  
Percent in Pace : 62.0%  
Number of Vehicles > 55 MPH : 13  
Percent of Vehicles > 55 MPH : 1.0%

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County of Napa  
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## Eastbound, Westbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
04/27/24	0	0	0	0	0	0	2	0	1	0	0	0	0	0	3
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
05:00	0	0	0	0	0	1	1	1	1	0	1	0	0	0	5
06:00	0	0	0	0	1	1	9	4	2	1	0	0	0	0	18
07:00	0	3	1	0	3	8	10	10	2	1	0	0	0	0	38
08:00	0	1	0	0	0	8	23	20	5	0	0	0	0	0	57
09:00	0	1	0	2	2	21	27	14	5	0	0	0	0	0	72
10:00	1	2	6	12	23	30	22	5	1	1	0	0	0	0	103
11:00	0	2	1	2	14	36	24	11	0	1	0	0	0	0	91
12 PM	0	0	1	1	15	38	39	15	1	0	0	0	0	0	110
13:00	0	0	1	2	20	40	34	16	4	2	0	0	0	0	119
14:00	0	0	1	2	12	64	34	15	3	1	0	0	0	0	132
15:00	0	0	0	0	8	37	52	17	4	0	0	0	0	0	118
16:00	0	0	0	0	12	39	29	11	5	0	0	0	0	0	96
17:00	0	0	1	1	3	22	28	9	2	0	0	0	0	0	66
18:00	0	0	0	1	3	10	24	6	2	0	0	0	0	0	46
19:00	0	0	0	0	0	10	10	6	4	0	0	0	0	0	30
20:00	0	0	0	0	8	4	10	2	0	1	0	0	0	0	25
21:00	0	0	0	1	3	11	3	5	2	0	0	0	0	0	25
22:00	0	0	0	0	3	2	8	3	0	0	0	0	0	0	16
23:00	0	0	0	0	0	9	2	0	1	0	0	0	0	0	12
Total	1	9	12	24	130	391	392	171	45	8	1	0	0	0	1184

Daily  
15th Percentile : 35 MPH  
50th Percentile : 40 MPH  
85th Percentile : 46 MPH  
95th Percentile : 49 MPH

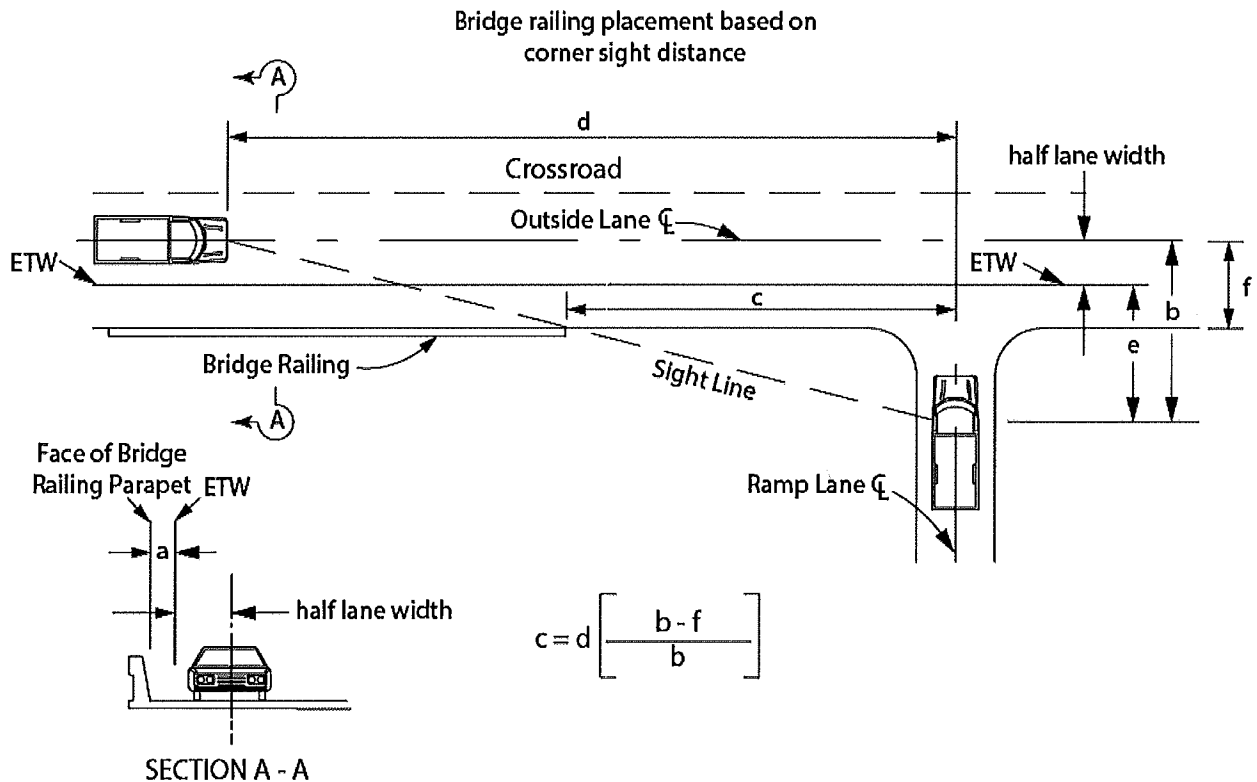
Statistics  
Mean Speed(Average) : 41 MPH  
10 MPH Pace Speed : 36-45 MPH  
Number in Pace : 783  
Percent in Pace : 66.1%  
Number of Vehicles > 55 MPH : 9  
Percent of Vehicles > 55 MPH : 0.8%

## **Appendix B**

Caltrans HDM Figure, HDM Excerpts Chapters 200 & 400

Figure 504.3I

## Location of Ramp Intersections on the Crossroads



a = Distance from edge of traveled way (ETW) to bridge railing; includes sidewalk width, if present.

b = Distance from center of outside lane to assumed eye of ramp vehicle driver.

b = half lane width + e

c = Ramp set back from end of bridge railing.

d = Corner sight distance measured along the crossroad from the intersection. See Index 405.1.

e = Driver's eye set back: Ramp driver's eye is assumed to be located 10' plus the shoulder width, but not less than 15' from the ETW. See Index 405.1.

f = half lane width + a



# CHAPTER 200 – GEOMETRIC DESIGN AND STRUCTURE STANDARDS

## Topic 201 – Sight Distance

### Index 201.1 – General

Sight distance is the continuous length of highway ahead, visible to the highway user. Four types of sight distance are considered herein: passing, stopping, decision, and corner. Passing sight distance is used where use of an opposing lane can provide passing opportunities (see Index 201.2). Stopping sight distance is the minimum sight distance for a given design speed to be provided on multilane highways and on 2-lane roads when passing sight distance is not economically obtainable. Stopping sight distance also is to be provided for all users, including motorists and bicyclists, at all elements of interchanges and intersections at grade, including private road connections (see Topic 504, Index 405.1, & Figure 405.7). Decision sight distance is used at major decision points (see Indexes 201.7 and 504.2). Corner sight distance is used at intersections (see Index 405.1, Figure 405.7, and Figure 504.3I).

**Table 201.1 shows the minimum standards for stopping sight distance related to design speed for motorists.** Stopping sight distances given in the table are suitable for Class II and Class III bikeways. The stopping sight distances are also applicable to roundabout design on the approach roadway, within the circulatory roadway, and on the exits prior to the pedestrian crossings. Also shown in Table 201.1 are the values for use in providing passing sight distance.

See Chapter 1000 for Class I bikeway sight distance guidance.

Chapter 3 of "A Policy on Geometric Design of Highways and Streets," AASHTO, contains a thorough discussion of the derivation of stopping sight distance.

### 201.2 Passing Sight Distance

Passing sight distance is the minimum sight distance required for the driver of one vehicle to pass another vehicle safely and comfortably. Passing must be accomplished assuming an oncoming vehicle comes into view and maintains the design speed, without reduction, after the overtaking maneuver is started.

July 1, 2020

**Table 201.1****Sight Distance Standards**

Design Speed <sup>(1)</sup> (mph)	Stopping <sup>(2)</sup> (ft)	Passing (ft)
10	50	---
15	100	---
20	125	800
25	150	950
30	200	1,100
35	250	1,300
40	300	1,500
45	360	1,650
50	430	1,800
55	500	1,950
60	580	2,100
65	660	2,300
70	750	2,500
75	840	2,600
80	930	2,700

**Notes:**

<sup>(1)</sup>See Topic 101 for selection of design speed.

<sup>(2)</sup>For sustained downgrades, refer to underlined standard in Index 201.3

The sight distance available for passing at any place is the longest distance at which a driver whose eyes are 3 ½ feet above the pavement surface can see the top of an object 4 ¼ feet high on the road. See Table 201.1 for the calculated values that are associated with various design speeds.

In general, 2-lane highways should be designed to provide for passing where possible, especially those routes with high volumes of trucks or recreational vehicles. Passing should be done on tangent horizontal alignments with constant grades or a slight sag vertical curve. Not only are drivers reluctant to pass on a long crest vertical curve, but it is impracticable to design crest vertical curves to provide for passing sight distance because of high cost where crest cuts are involved. Passing sight distance for crest vertical curves is 7 to 17 times longer than the stopping sight distance.

Ordinarily, passing sight distance is provided at locations where combinations of alignment and profile do not require the use of crest vertical curves.

July 1, 2020

- (5) *Lock To Lock Time* - The time in seconds that an average driver would take under normal driving conditions to turn the steering wheel of a vehicle from the lock position on one side to the lock position on the other side. The default in AutoTurn software is 6 seconds.
- (6) *Steering Lock Angle* - The maximum angle that the steering wheels can be turned. It is further defined as the average of the maximum angles made by the left and right steering wheels with the longitudinal axis of the vehicle.
- (7) *Articulating Angle* - The maximum angle between the tractor and semitrailer.

## Topic 405 – Intersection Design Standards

### 405.1 Sight Distance

- (1) *Stopping Sight Distance*. See Index 201.1 for minimum stopping sight distance requirements.
- (2) *Corner Sight Distance*.

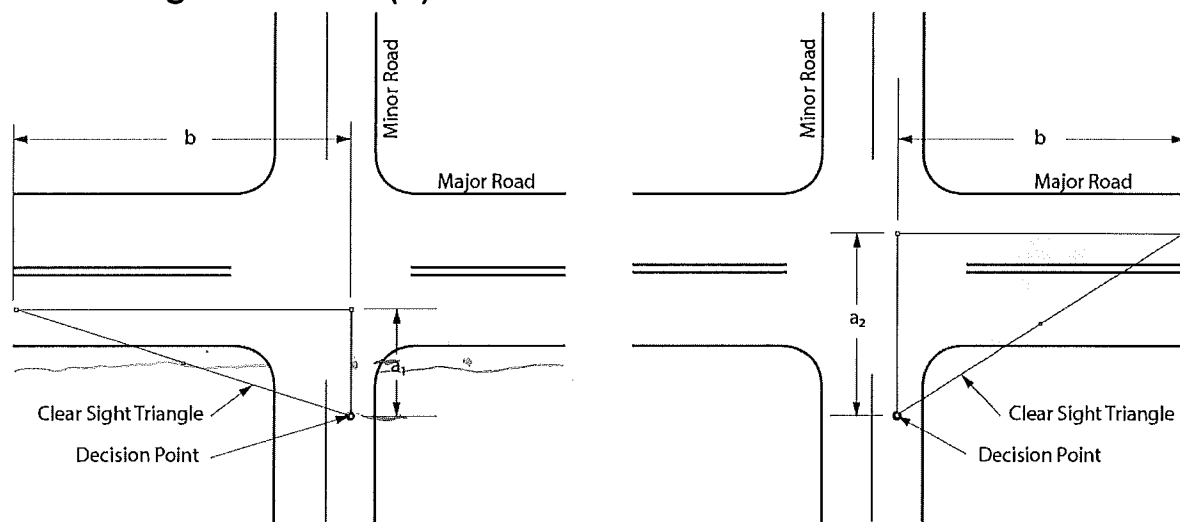
- (a) General. At unsignalized intersections a substantially clear line of sight should be maintained between the driver of a vehicle, bicyclist or pedestrian stopped on the minor road and the driver of an approaching vehicle on the major road that has no stop. Line of sight for all users should be included in right of way, in order to preserve sight lines.

See DIB 79 for 2R, 3R, certain storm damage, protective betterment, operational, and safety projects on two-lane and three-lane conventional highways.

Adequate time should be provided for the stopped vehicle on the minor road to either cross all lanes of through traffic, cross the near lanes and turn left, or turn right, without requiring through traffic to radically alter their speed. The visibility required for these maneuvers form a clear sight triangle with the corner sight distance  $b$  and the crossing distance  $a_1$  or  $a_2$  (see Figure 405.1 as an example of corner sight distance at a two-lane, two-way highway). Dimensions  $a_1$  and  $a_2$  are measured from the decision point to the center of the lane. The actual number of lanes will vary on the major and minor roads. There should be no sight obstruction within the clear sight triangle.

The methodology used for the driver on the minor road that is stopped to complete the necessary maneuver while the approaching vehicle travels at the design speed of the major road is based on gap-acceptance behavior. A 7-1/2 second criterion is applied to a passenger car (including pickup trucks) for a left turn from a stop on the minor road. However, this time gap does not account for a single-unit truck (no semitrailer), a combination truck (see Index 404.4 for truck tractor-semitrailer guidance), a right-turn from a stop, or for a crossing maneuver. See Table 405.1A for the time gap that addresses these situations for the assumed design vehicle making these maneuvers from the minor road.

In determining corner sight distance, a set back distance for the vehicle waiting on the minor road must be assumed as measured from the edge of traveled way of the major road. Set back for the driver of the vehicle on the minor road should be a minimum of 10 feet plus the shoulder width of the major road but not less than 15 feet. The location of the driver's eye for the set back is the decision point per Figure 405.1. Corner sight distance and the driver's eye set back are also illustrated in Figures 405.7 and 504.31. Line of sight for corner sight distance for passenger cars is to be determined from a 3 and 1/2-foot height at the location of the driver of the vehicle in the center of the minor road lane to a 3 and 1/2-foot object height in the center of the approaching outside lane of the major road. This provides for reciprocal sight by both vehicles. The passenger

**Figure 405.1**  
**Corner Sight Distance (b)****Table 405.1A**  
**Corner Sight Distance Time Gap ( $T_g$ ) for Unsignalized Intersections**

Design Vehicle	Left-turn from Stop (s) <sup>(4)</sup>	Right-turn from Stop and Crossing Maneuver (s)
<b>Passenger Car</b>	7½	6½
Private Road Intersection		
Rural Driveway		
<b>Single-Unit Truck</b>	9½	8½
Public Road Intersection		
<b>Combination Truck</b>	11½	10½
Major and Minor Roads on Routes:		
National Network		
Terminal or Service Access		
California Legal		
KPRA Advisory		

Notes: Time gaps are for a stopped vehicle to turn left, right or cross a two-lane highway with no median and with minor road grades of 3 percent or less. The table values should be adjusted as follows:

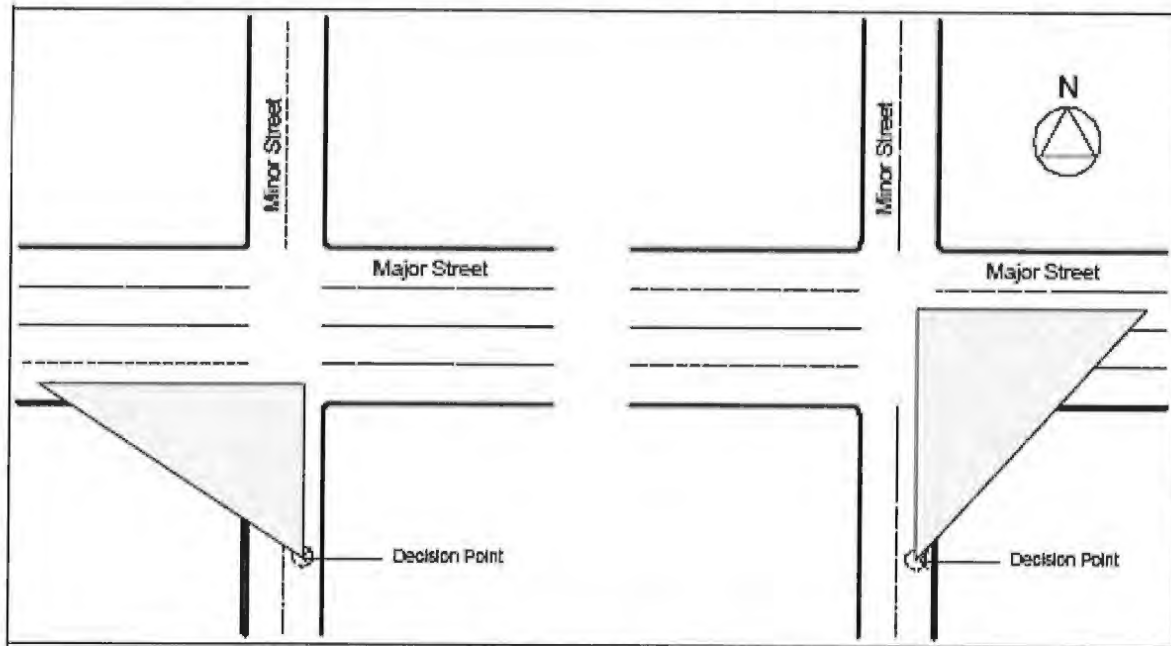
(1) For multilane highways—When crossing or making a left-turn onto a two-way major road with more than two lanes, add 0.5 s for passenger cars or 0.7 s for trucks for each additional lane to be crossed. Median widths should be converted to an equivalent number of lanes in applying the 0.5 s and 0.7 s criteria. For example, an 18-foot wide median is equivalent to 1.5 lanes; this requires an additional 0.75 s for a passenger car to cross or an additional 1.05 s for a truck to cross.

(2) For minor road approach grades—If the minor road approach grade is an upgrade that exceeds 3 percent and the rear wheels of the design vehicle are on the grade exceeding 3 percent, add 0.2 s for each percent grade for left-turns and crossing maneuvers; or add 0.1 s for each percent grade for right-turns. For example, a passenger car is turning right from a minor road and at the stop location its rear wheels are on a 4 percent upgrade; this requires an additional 0.4 s for the right-turn.

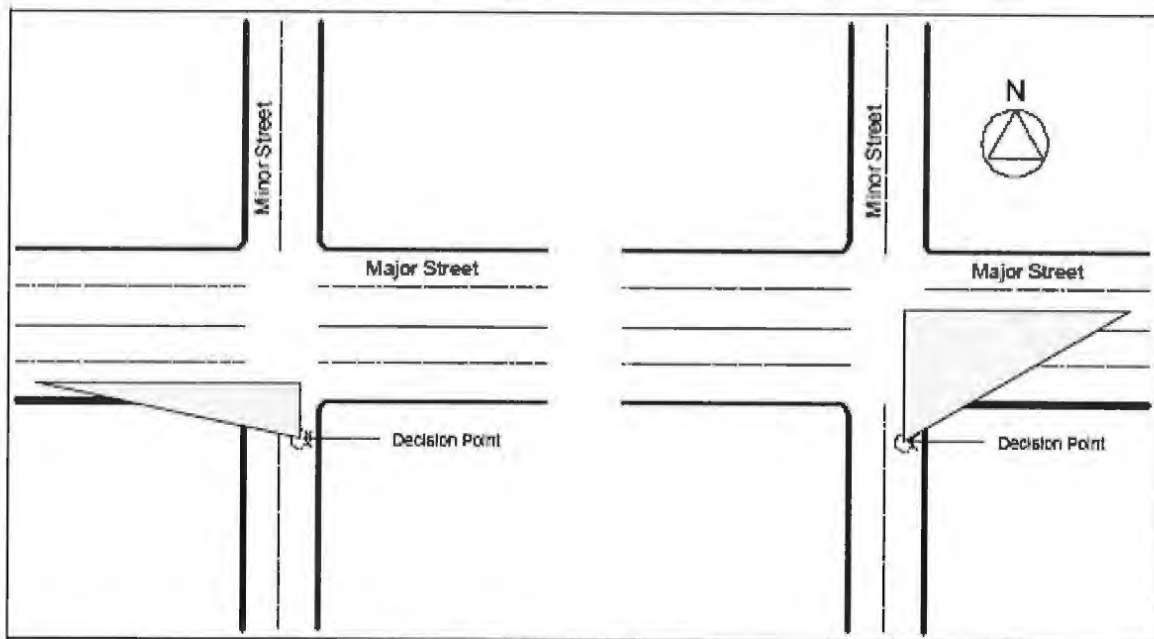
(3) Unique situations may necessitate a different design vehicle for a particular minor road than those listed here (e.g., predominant combination trucks out of a rural driveway). Additionally, for intersections at skewed angles less than 60 degrees, a further adjustment is needed. See the AASHTO "A Policy on Geometric Design of Highways and Streets" for guidance.

(4) Time gap for vehicles approaching from the left can be the same as the right-turn from stop maneuver.

## Intersection Geometric Design



**Figure 4.1. Approach Sight Triangles**



**Figure 4.2. Departure Sight Triangles**

Source: CTRE – Iowa State University

## **Appendix C**

Project Trip Generation & Napa County Left-Turn Lane Graph



A Tradition of Stewardship  
A Commitment to Service

# WINERY TRIP GENERATION WORKSHEET

Planning, Building & Environmental Services

1195 Third Street, Suite 210

Napa, CA 94559-3082

(707) 253-4417

## PROJECT DESCRIPTION

Clear Form

**Winery Name:** Promise Winery - Use Permit (Resubmittal of project file no. P22-00384) **Date Prepared:** 12/15/23

Existing Entitled Winery		Harvest	Non-Harvest
Number of Full Time Employees*	Weekday	0	0
	Weekend	0	0
Number of Part Time Employees*	Weekday	0	0
	Weekend	0	0
Maximum Daily Visitation	Weekday	0	0
	Weekend	0	0
Annual Gallons of Production		0	0
Annual Tons of Grape Haul		0.0	N/A
Number of Visitors at the Largest Event that occurs two or more times per month, on average	Weekday	0	0
	Weekend	0	0

Proposed Winery		Harvest	Non-Harvest
Number of Full Time Employees*	Weekday	2	2
	Weekend	2	2
Number of Part Time Employees*	Weekday	3	3
	Weekend	3	3
Maximum Daily Visitation	Weekday	15	15
	Weekend	15	15
Annual Gallons of Production		30,000	30,000
Annual Tons of Grape Haul		187.5	N/A
Number of Visitors at the Largest Event that occurs two or more times per month, on average	Weekday	0	0
	Weekend	0	0

\*Number of full time and part time employees should represent the max number of employees that will be working on any given day (including all vendors and contractors employed for the largest event that occurs two or more times per month on average).



## TRIP GENERATION

Existing Winery					Harvest	Non-Harvest
<u>Maximum Daily Weekday Traffic (Friday)</u>						
	<u>Harvest</u>	<u>Non-Harvest</u>				
FT Employees	0	0	3.05 one way trips/employee	FT Employee Daily Trips	0.0	0.0
PT Employees	0	0	1.9 one way trips/employee	PT Employee Daily Trips	0.0	0.0
Max Visitors	0	0	2.6 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	0.0	0.0
Max Event	0	0	2.6 visitors/vehicle for 2 one way trips	Max Event Daily Trips	0.0	0.0
Gallons of Production	0		0.000018 truck trips	Production Daily Trips	0.0	0.0
Tons of Grape Haul#	0.0		0.013889 truck trips	Grape Haul Daily Trips	0.0	0.0
					<b>Total Weekday Daily Trips</b>	<b>0</b>
					<b>Total Weekday Peak Hour Trips*</b>	<b>0</b>
<u>Maximum Daily Weekend Traffic (Saturday)</u>						
	<u>Harvest</u>	<u>Non-Harvest</u>				
FT Employees	0	0	3.05 one way trips/employee	FT Employee Daily Trips	0.0	0.0
PT Employees	0	0	1.9 one way trips/employee	PT Employee Daily Trips	0.0	0.0
Max Visitors	0	0	2.8 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	0.0	0.0
Max Event	0	0	2.8 visitors/vehicle for 2 one way trips	Max Event Daily Trips	0.0	0.0
Gallons of Production	0		0.000018 truck trips	Production Daily Trips	0.0	0.0
Tons of Grape Haul#	0.0		0.013889 truck trips	Grape Haul Daily Trips	0.0	0.0
					<b>Total Weekend Daily Trips</b>	<b>0</b>
					<b>Total Weekend Peak Hour Trips*</b>	<b>0</b>
<u>Maximum Annual Traffic</u>						
					<b>Total Annual Trips**</b>	<b>0</b>
Proposed Winery					Harvest	Non-Harvest
<u>Maximum Daily Weekday Traffic (Friday)</u>						
	<u>Harvest</u>	<u>Non-Harvest</u>				
FT Employees	2	2	3.05 one way trips/employee	FT Employee Daily Trips	6.1	6.1
PT Employees	3	3	1.9 one way trips/employee	PT Employee Daily Trips	5.7	5.7
Max Visitors	15	15	2.6 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	11.5	11.5
Max Event	0	0	2.6 visitors/vehicle for 2 one way trips	Max Event Daily Trips	0.0	0.0
Gallons of Production	30,000		0.000018 truck trips	Production Daily Trips	0.5	0.5
Tons of Grape Haul#	187.5		0.013889 truck trips	Grape Haul Daily Trips	2.6	0.0
					<b>Total Weekday Daily Trips</b>	<b>27</b>
					<b>Total Weekday Peak Hour Trips*</b>	<b>10</b>
<u>Maximum Daily Weekend Traffic (Saturday)</u>						
	<u>Harvest</u>	<u>Non-Harvest</u>				
FT Employees	2	2	3.05 one way trips/employee	FT Employee Daily Trips	6.1	6.1
PT Employees	3	3	1.9 one way trips/employee	PT Employee Daily Trips	5.7	5.7
Max Visitors	15	15	2.8 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	10.7	10.7
Max Event	0	0	2.8 visitors/vehicle for 2 one way trips	Max Event Daily Trips	0.0	0.0
Gallons of Production	30,000		0.000018 truck trips	Production Daily Trips	0.5	0.5
Tons of Grape Haul#	187.5		0.013889 truck trips	Grape Haul Daily Trips	2.6	0.0
					<b>Total Weekend Daily Trips</b>	<b>26</b>
					<b>Total Weekend Peak Hour Trips*</b>	<b>12</b>
<u>Maximum Annual Traffic</u>						
					<b>Total Annual Trips**</b>	<b>8,969</b>
Net New Trips					Harvest	Non-Harvest
<u>Maximum Weekday Traffic (Friday)</u>						
If total net new daily trips is greater than 40, a TIS is required						
					<b>Net New Weekday Daily Trips</b>	<b>27</b>
					<b>Net New Weekday Peak Hour Trips*</b>	<b>10</b>
<u>Maximum Weekend Traffic (Saturday)</u>						
If total net new daily trips is greater than 40, a TIS is required						
					<b>Net New Weekend Daily Trips</b>	<b>26</b>
					<b>Net New Weekend Peak Hour Trips*</b>	<b>12</b>
<u>Maximum Annual Traffic</u>						
A Traffic Impact Study is NOT Required					<b>Net New Annual Trips**</b>	<b>8,969</b>

#Trips associated with Grape Haul represent harvest season only.

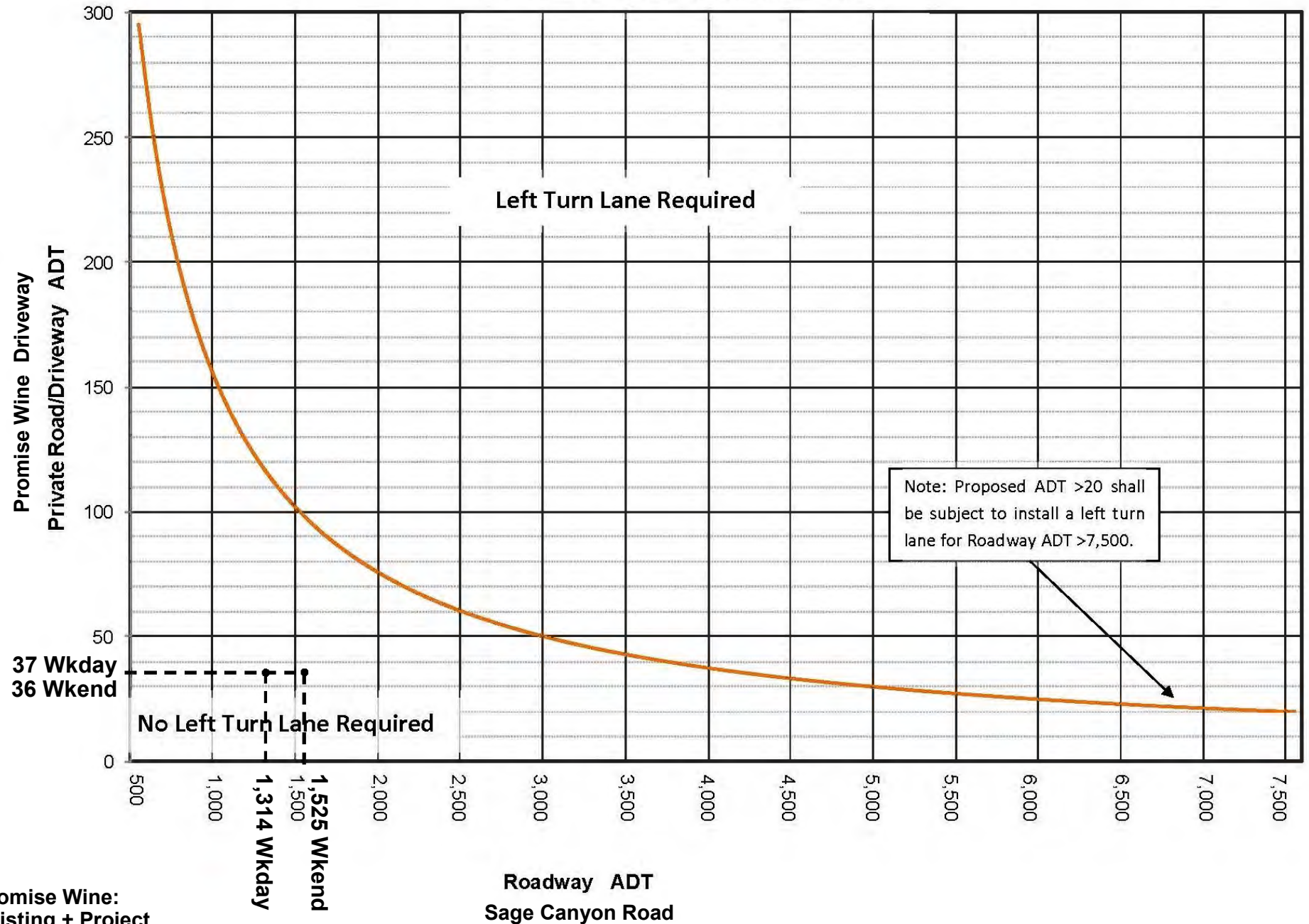
\*Weekday peak hour trips are calculated as 38% of daily trips associated with visitors and production plus one trip per employee. Weekend peak hour trips are calculated as 57% of daily trips associated with visitors and production plus one trip per employee.

\*\*Annual trips represent a conservative calculation that assumes 11 weeks of harvest, all weekdays are Fridays, all weekends are Saturdays, and assumes that the largest event that occurs two or more times per month on average occurs every day.



# Promise Wine Driveway / Sage Canyon Road

## LEFT TURN LANE WARRANT GRAPH



Promise Wine:  
Existing + Project  
Weekday and Weekend Conditions

